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Educational News and Editorial Comment

A SUPERINTENDENT WHO SEES HIS DUTY AND DOES IT

There is, fortunately for Chicago, at the head of the school system of this city a superintendent who is not afraid to join issue with the Teachers' Federation. Misled by their political bosses, some of the teachers have come to believe that whenever the superintendent or the principals want to call them together to discuss policies, the schools must be dismissed and the meetings held during regular school hours. The teacher, according to this belief, is paid to attend to professional duties only during that part of the day and week when school is scheduled to be in session. In order to compel a recognition of their claims, a group of the teachers have carried on an attack against the superintendent which is vigorously and openly directed against his continuance in office. They have attempted to make it appear that the superintendent has raised a petty issue. They have voiced the charge that he is violating board of education rules and that he is trespassing on their inalienable rights.

Superintendent McAndrew has made a dignified reply which is so fine an example of professional courage that the *Elementary*

School Journal asked permission to print it in full. It will be found on subsequent pages of this issue.

It is unfortunate that the people of Chicago cannot all read Superintendent McAndrew's statement and understand the situation which he is attempting to correct. He is waging a battle not merely for Chicago but for all the school systems of the country. If teachers are going to prostitute their profession by reducing their public service to the minimum through outcry and intimidation, then the consequences for American education are serious. If a superior school officer is to be made, as Superintendent McAndrew has been made in recent weeks, a subject of vicious misrepresentation, it is time that the voice of the teaching profession of this country be raised in protest against the tactics of his enemies and in praise of his courage and devotion to duty.

It is one of the defects of our American system of local control of schools that the educational profession has difficulty in bringing any effective influence to bear on such a situation as that which exists in Chicago. It is, however, quite certain that the superintendents and teachers of this country do not, in general, sympathize with the attitude of those who are attacking Superintendent McAndrew. They do sympathize with Superintendent McAndrew's efforts to bring order and co-operation into the troubled system over which he presides. They will be glad to know that the board of education, by a vote of 6 to 3, sustained the superintendent in his position. They will be glad to know that he is beginning to make an impression on the thinking of the people of the city of Chicago. A recent editorial in the *Chicago Daily Tribune* sums up the growing conviction that the teachers are misled and unprofessional:

DO THE SCHOOL CHILDREN EVER COUNT?

Superintendent of Schools McAndrew has opened the school year with a report on what the pupils are getting out of the system which is to cost the people of Chicago $57,980,000 this year. He says that a simple test of reading showed that only 10 per cent could be scored as good, 61 per cent fair, and 29 per cent poor. A test of penmanship gave only 2 per cent good and more than 80 per cent poor. A simple sum of adding found 66 per cent correct.

Mr. McAndrew says that these tests reveal facts. If they did, it means that the $58,000,000 a year system is not teaching the elementals. It will produce citizens deficient in them.

The superintendent says that it is the consequence of demoralization, of lack of supervision, and of lack of responsibility. He says that there is an organized disloyalty by a minority and that the system as a whole resents discipline, obedience, and hard work.

We know what will follow these statements. It will be an attack of increased vigor on the superintendent by Miss Margaret Haley, the Teachers' Federation, the labor supporters of the federation, and the politicians who use the schools for politics.

We do not know whether Mr. McAndrew is right or wrong, but we do know that the city had better find out and that in finding out it had better consider the children and no other persons. We know that the battle of authority, which has been continuous for thirty years and more, under every administration, under every superintendent, and without regard to the personnel of the school board, could be expected to produce just such results. And it probably has.

It is not to be believed that the discipline of any teaching force could have survived the bitterness of these conflicts or that teachers embattled in the board rooms could be giving what they should in the schoolrooms.

We hear from certain radicals that the school system is being molded by a capitalistic system into the manufacture of caste, designed to stamp inferiority on the masses of citizens whose education is received in the schools. Parents have been alarmed by the statement that their children were to be made into serfs. Some have appealed to the courts for an injunction to restrain the board from converting the Harper School into a junior high school.

If the people want inferiority stamped on their children, they will tolerate a system which does not teach reading, writing, and simple arithmetic. That is a good way to make the American heritage of these children the pick and the washtub.

We do not recall one of the radicals ever inquiring into the condition of education in the schools or ever presenting a report to show what the children were getting from their schools.

The future welfare of the citizens of Chicago and of the city is in the schools. That is the most obvious fact and the most ignored. Schools which are to make character, give the child a chance in life, promote its well-being and comfort and ability to provide for itself in later years, which are to produce an ordered, intelligent, public-spirited citizenship, are thrown into the bitter and unending fight of adults over their control.

The very people who have the most to say for human rights contribute the most to the demoralization which does the greatest injury to the greatest number of people. The authority of management is involved in contention. The city stands as an incompetent, with its most vital interests tossed about by angry factions.

If the schools run true to form, the questions now will not be: Are Mr. McAndrew's statements correct? Are they justified by conditions? Do they

indicate what the children are getting out of the system? If so, what is to be done about it?

Will these questions be asked? Probably not. The issue will be McAndrew's job. The fight will be to run him out of town. The children in the schools will be ignored. The demoralization will be greater. That, at any rate, is what we may expect from what we know of school affairs. The people have been unable to do anything about it thus far, but if they have any regard for their children's future, they will find a way.

SUPPLEMENTARY READING FROM THE GOVERNMENT PRINTING OFFICE

The Bureau of Education has published as Bulletin No. 23 of the series of 1924 a pamphlet which describes the sources from which teachers can secure much interesting and usable supplementary reading material at very low cost. The introductory page of this bulletin, which is entitled, *Government Publications Useful to Teachers*, states the case for this material as follows:

A growing tendency to supplement textbooks with source and other reference materials in the teaching process is evident in the United States. It is a good tendency. Pupils should learn the primary sources of information. They should learn to approach problems from different viewpoints. They should have access to details such as no text can furnish when attempting to solve certain types of problems. Teachers using a project method of instruction must have access to such materials.

Cost is a limiting factor of the first magnitude in the effort of many schools to assemble for classroom use adequate supplementary teaching material.

Reliability of information, freedom from misleading propaganda, and harmony of intent with American ideals, especially in the fields of government and civics, are of fundamental concern to those who select instructional materials for use in the public schools.

Educators are aware of the fact that a variety of organizations and agencies are continually seeking access to the public schools for propaganda purposes. It is felt, therefore, that teachers will welcome a source of supplementary teaching materials which provides (1) reliability of information, (2) costs which are little or nothing, and (3) surety that the viewpoint presented, especially in the field of social studies, is free from bias and in keeping with American ideals.

The United States government departments are the primary sources of such materials. The government of the United States is the greatest of modern publishers. It employs thousands of scientists who are engaged the year round in researches and investigations covering every phase of American life. The results of these activities of the most comprehensive and effective organization ever known are constantly reduced to print and poured in an incessant flood from the Government Printing Office at Washington, the largest printing plant in the world.

A STUDY OF THE EFFECT OF ENVIRONMENT ON INTELLIGENCE

The evidence concerning the relative importance of heredity and environment has commonly been of an indirect sort and has been somewhat difficult to interpret. We are much in need of a crucial experiment in the matter or at least of a type of evidence which will resemble that which might be gained by means of a crucial experiment. Such an experiment would enable us to isolate and measure separately the effect of each of the two factors. Something corresponding to an experimental isolation of the two factors occurs in the case of the child who is adopted in infancy and is placed in an environment which is radically different from that in which he would have lived if he had remained in his own family. In this case the effect of environment may be measured by comparing the intelligence-test score of the child adopted in infancy with the scores made by his brothers and sisters by blood. The effect of heredity, on the other hand, may be measured by comparing the score of the adopted child with the scores of the children in the family into which he has been adopted, if there are such children.

It is proposed to gather statistics on this matter and to make tests of all available cases of the kind which has been mentioned. Will the readers of this note send to Frank N. Freeman, University of Chicago, the names of persons who have adopted children in infancy and who might be willing to co-operate in this study?

CURRICULUM RECONSTRUCTION

The National Education Association is to be congratulated on the publication of a bulletin which deals in a comprehensive way with an educational issue of the first importance, namely, the reconstruction of the curriculum. Research Bulletin No. 5, Vol. I, *Facts on the Public School Curriculum*, contains tables showing time distributions of different subjects and the grades in which various items of instruction are dealt with. There is a study of the statutory requirements relative to elementary-school courses and a bibliography of materials which should be read by teachers and administrative officers.

The information thus made available is very timely in view of the effort which is being made this year by various agencies, especially a commission of the Department of Superintendence, to

prepare and publish material that will be of assistance to cities and states which are making an effort to broaden the instruction offered in the public schools.

The contrast between schools of an earlier date which administered a meager curriculum and modern schools with their richer courses of study is set forth in the following paragraphs quoted from the bulletin:

How Is a Child's Time Divided between Subjects?

In recent years much has been heard about "fads and frills" in the public schools. There is often disagreement as to what "fads and frills" are. What appears as a "fad" to one man is an "essential" to another. The subject that is "fundamental" in one person's thinking is a "frill" in another's.

The division of a child's time in present-day elementary schools does not show that the newer subjects are being given undue emphasis. A survey just completed shows that in his elementary-school career a child's time is divided as follows:

Subject	Percentage of Time
The three R's (reading, writing, arithmetic, spelling, and language)	51
Other fundamentals (history, civics, geography, and science)	14
Health and hygiene (hygiene, physical training, and recess)	15
Industrial arts, drawing, and music	14
All other subjects, opening exercises, etc.	6

Over half of a child's time in the elementary school is still given to mastering the three R's. This is enough since life is made up of far more than the ability to write, to do sums, and to call words from a printed page.

Is the School of Today More Efficient Than That of Yesterday?

Man is prone to magnify the glories of the past. This human failing leads many to compare unfavorably the schools of yesterday with those of today. However, there is no evidence to show that the schools of a generation ago were more efficient than present-day schools. Such evidence as exists points in the opposite direction.

The Springfield Tests Show That the Three R's Are Better Taught Today Than They Were Two Generations Ago

In 1905 several sets of old examination papers, written in 1846, were discovered in the attic of a school building in Springfield, Massachusetts. These 1846 examinations have been given to children in present-day schools and the

results compared. The results of such comparisons may be summarized in the following quotations from *The Springfield Tests:*

"1. Whatever may be said regarding the schools of half a century ago, these old test papers present indisputable evidence of their inferiority as compared with the schools of the present day.

"2. Anybody who would examine the eighty or more sheets of specimen penmanship of the class of 1846 would be almost willing to accept the statement of the School Committee of Springfield in their report of 1853 that 'there are but few in our schools who attain excellence in this beautiful accomplishment [penmanship] or even a moderate degree of skill.' The results [of present-day school children] seem decidedly superior to those attained under old-time methods.

"3. The results of these two tests [spelling and arithmetic] seem to indicate that today children are not only better spellers, but that they reason better in arithmetic, and are more accurate in ciphering than children of about the same age half a century ago."

How Efficient Were the Schools of a Generation Ago?

There is definite evidence that the schools of the middle of the last century were very inefficient. A survey of the Boston schools was made in 1845. These schools were probably among the best in the country at that time. The following statements are quoted from this 1845 survey of Boston's schools:

"1. It is very difficult to believe that, in the Boston schools, there should be so many children in the first classes [eighth grades] unable to answer such questions, that there should be so many who try to answer and answer imperfectly, that there should be so many absurd answers, so many errors in spelling, in grammar, and in punctuation.

"2. There is another sad reflection suggested by these answers. They show, beyond all doubt, that a large proportion of the scholars of our first classes [eighth grades], boys and girls of fourteen or fifteen years of age, when called upon to write simple sentences, to express their thoughts on common subjects, without the aid of a dictionary or a master, cannot write without such errors in grammar, in spelling, and in punctuation as we should blush to see in a letter from a son or daughter of their age. And most of these children are about finishing their school career: they are going out into life."

The *Common School Journal* for October, 1845, commented on the results of this investigation of the Boston schools as follows:

"We have no wish to blazon abroad the defects of these schools; but if this occasion should not be made use of, for admonition and warning, the calamity of their present condition would not only be gratuitously suffered, but it might be perpetuated for years to come. . . . .

"No one can look carefully into the details of this examination without discovering an accumulation and redundancy of evidence in support of the

declaration made by both of the committees, that the children have been superficially taught."

The Schools of Today Are Doing More and Doing It More Efficiently

The burdens placed upon the modern school have been tremendously increased in recent years. Parents have turned over many duties in the training of their children that were formerly performed in the home. These the schools perform, not because they particularly desire to be responsible for them but because if not cared for by the school they would often be neglected altogether.

In spite of these additional burdens, the school is performing its traditional work more effectively than ever before.

A pronouncement regarding catholic schools

In an article published in the September issue of the *National Catholic Welfare Conference Bulletin* there is a vigorous statement of the position of the authorities of the Catholic schools with regard to the effort which is being made in Oregon and Michigan to compel all children to attend the public school. The opening paragraphs of this article state in fervid language and italic type that there can be no remote possibility of disloyalty to American ideals in any private school in the United States. Citations are then given from official records of the Catholic church and court decisions to show that parents have an inalienable right to control the education of their children. The final paragraphs describe the extent to which the Catholic schools have gone in complying with the requirements of state laws.

Two quotations from this article seem to the present writer to be of questionable value in support of the Catholic position. It is argued that parents should be free in the determination of the kind of education which their children are to receive. In the midst of this argument appears the following:

The Third Plenary Council of Baltimore, 1884, decreed as follows:

"We not only exhort Catholic parents with paternal affection, but we command them with all the authority in our power to procure a truly Catholic education for their dear children and to send them to the parish or other truly Catholic schools."

The final paragraph of the article seems to be a complete and unqualified acceptance of the principle of state supervision and

seems to assert that state supervision is now in full, general, and effective operation. In so far as this paragraph is intended to serve as information to readers of the *Bulletin*, it ought to be carefully checked with the facts. In so far as it represents a program for the future, it is certainly hopeful. The paragraph is as follows:

The parochial school shall not be abolished! It is as good, as efficient, as loyal, as American a school as any. The state has made education compulsory by statute, and we have co-operated in its enforcement. The state has prescribed the curriculum, and we have adopted it. The state has required the use of English as the language of instruction, and we have conscientiously complied with the requirement. The state has set standards for the training of teachers, and we have industriously endeavored to live up to them. The state has demanded reports, and we have meticulously made them. In all these things we have faithfully followed the leadership of the law that still allowed us liberty. Moreover, we have invited sympathetic inspection. We have welcomed constructive criticism. We have approved reasonable regulation. We have borne unequal treatment in the matter of financial support. But beyond this point there is no room for conciliation and compromise. To unwarranted interference we must strongly object. Dictatorial control we must resent with all our sense of right and resist with all our lawful might. And while God reigns in Heaven and the Constitution lives in America, we shall never submit to abolition.

SUPERINTENDENT CONDON

R. J. Condon has secured a leave of absence for one year from his position as head of the school system of Cincinnati, Ohio, for the purpose described in the following announcement, which appeared over his signature in the September issue of the *Atlantic Monthly:*

Courage, faith, hope, kindness, gentleness; patience, perseverance; punctuality, regularity; accuracy, industry, and application; honor, truth, integrity; sincerity and simplicity; love of work and pride in work well done; unselfish service, sympathy; self-control and self-reliance; duty and obedience; reverence for God, for each other, and for all his lowly creatures.

These—the moral and spiritual values of life—we believe, are the fundamentals in education. They are the individual and national qualities of character which have made America great in the past; they are the qualities which are most needed in the citizenship of today; they are the hope of the future. We cannot return to the simple ways of our fathers, but it is still possible under a more complex social order to teach the truths of the past and to inspire in the children of today these ideals without which the nation cannot fare well.

Because we believe this and, believing it, desire to do our part to help the schools of America to discharge their full obligation in the production of good

citizenship, we shall, during this year which I am to spend with the *Atlantic Monthly*, develop plans that will re-emphasize the importance of spiritual values in education, that will help to make clear that soul culture is the most important and most necessary phase of education, and that social and civic ideals and the development of personal character are the things of greatest concern.

For several months the *Atlantic* staff has been assembling material which has been placed at my disposal. As a result of the study of the subject which I have been making, it has been decided to call upon the teachers of America to contribute out of their experience the most vital and valuable material which they have used for the development of character. A selected list of men and women, those who represent America at its best in every field of endeavor, will be asked to say what made the greatest impression upon them as children that subsequently had the greatest influence in forming their character. From these sources we hope to obtain material in the way of ideals available for the schools of America, toward the development of a finer citizenship among the young people of the present generation.

The literature of all nations will also be drawn upon, and the finest inscriptions, in order to give a new emphasis to these fundamentals of education, to the end that the American ideals of liberty and justice "shall not perish from the earth."

DETROIT PLATOON SCHOOLS

The *Eighty-first Annual Report of the Detroit Public Schools*, which has just been issued, contains much valuable and stimulating information about one of the most progressive school systems of the country. On pages 86 and 87 of this report there are descriptive and graphic accounts of the expansion of the school curriculum which has resulted in the reconstruction of the school buildings and in the reorganization of the plan of pupil administration. The descriptive matter is as follows:

The development of the elementary-school building in Detroit from the simple structure of the fifties and seventies to the highly specialized type of today is shown in the diagram on the following page. From 1854 to 1875 the elementary schools were three-story and basement buildings, designed to meet the needs of the nine-year union school. Classrooms were provided on the first and second floors, with a large assembly room for the senior division on the third floor.

In 1872 the present system of grades and half-grades was adopted, and in 1875 the three-story type was abandoned in favor of two stories and basement and the assembly hall disappeared. Although drawing (1865) and music (1871) had been added to the curriculum these were taught in the grade room by the regular teacher or by special teachers.

The kindergarten was formally adopted in 1895, and from this date until 1903 the addition of a double room for kindergarten purposes was the only new development in school buildings.

The addition of vocational subjects—sewing, cooking, and manual training—to the elementary list in 1899 led to provision for special rooms (usually a double room in the basement) to meet these needs.

About 1918 the policy of erecting buildings to meet adequately the instructional needs of the elementary school was adopted and buildings were designed around the curriculum. This policy carried with it the addition of gymnasiums for health work, auditoriums for socialized and community activities; laboratories, clinics, and lunchrooms. Basements were eliminated.

The graphic presentation of the same situation is very impressive. For the period from 1854 to 1875 the school building is represented as made up of eight classrooms and an assembly hall. In the period from 1875 to 1895 the building increased the number of its classrooms to twelve and gave up the assembly room. In the period from 1895 to 1903 the kindergarten was added. Between 1903 and the present there have been numerous additions until now the school building is made up of rooms for special subjects to a greater degree than it is of classrooms.

This expansion of the school building means, of necessity, a new form of pupil administration. Where facilities are provided for shopwork and laboratory courses and library reading, they can be used only by taking the pupils out of their classroom seats for at least a part of the day. The meaning of the platoon form of organization becomes perfectly clear when one looks at the Detroit diagrams.

In this connection it is interesting to ask the question, How do the people of Detroit like the modern arrangements? Since in some quarters the trade unions have been quoted as opposed to the platoon schools, the following extracts from a report published in the *Detroit Labor News* are significant. The report was prepared by the Committee on Education of the Detroit Federation of Labor.

Your Committee on Education begs leave to submit the following report on the platoon system in the Detroit public schools. Thanks to the fullest possible co-operation on the part of the officials of the Detroit public schools, your committee has had an opportunity to examine very carefully this system. We feel that we have at this time gathered sufficient information to make it possible to express an opinion on the platoon system.

In studying our school system it is necessary to keep in mind certain general principles. First, we must realize the mass character of education. The problem that confronts the public school system is the problem of educating children en masse. In our large cities the number of pupils who come to school is so great that it is impossible to give education on an individual basis. The general structure of the school, therefore, must be designed to meet this mass problem, allowing as much flexibility as is possible to meet the individual needs of abnormal pupils. Second, it must be appreciated that the problem of education is a broader one than that faced by our forefathers. A more complicated system of society has resulted in a more complicated school system. Subjects unthought of in the days of our fathers are now taught regularly in all up-to-date public schools. The program of the up-to-date school has been greatly enriched by the addition of special subjects. This has been due to the fact that the burden of training the children in many of the things that were formerly taught at home has been laid on the school system. Those not in sympathy with this broader education are not in a position to pass judgment on the public school system. Your committee is of the opinion that this enriched curriculum is very necessary in our school system. Naturally, it is possible to overdo some of the special subjects that are introduced in our schools. This, however, is a problem of appreciation, not a problem of principle.

The so-called "platoon school" is a school in which the grades are divided vertically into two platoons. While one platoon is using the "home" room the other platoon is engaged with "special" teachers in "special" rooms. It should not be confused with the "departmentalized" school in which the home room is vacant while the students are engaged in special rooms. . . . .

The objections made from the health side to schools organized on the platoon basis are not serious and do not constitute sufficient reason for condemning the platoon school. . . . .

Another feature of the platoon schools is the so-called socialized recitation. The method so described provides for the conducting of the class by a student of the class. . . . . No longer is it considered a crime for pupils to assist one another or to converse while classes are going on; nor is it any longer considered necessary to sit at rigid attention while the class is being conducted. During the transfers from classroom to classroom we noted that the discipline was largely under the control of the students themselves.

Complaint is made by the critics of the platoon school that it does not permit of the direct motherly supervision that was a part of the teacher's traditional duty. The viewpoint of this criticism is that of the person who is thinking of the old schools in which the pupils came in contact with only one school system. It is said that the pupil comes in contact with too many teachers. Today even in the so-called regular or traditional schools the pupil comes in contact with several teachers. On account of the introduction of special subjects, so necessary in our modern school system, the pupil has to learn to be with many teachers. In the platoon school the student is still under the supervision of one teacher for one-half of the time spent in school. The home-room teacher

has each pupil for one-half of the morning and one-half of the afternoon. It is the duty of the home-room teacher to instruct the pupil in the so-called "three R's." It would seem that this should give her ample opportunity to exercise general supervision over the child's development. . . . .

Where it has been possible to secure an expression of opinion from the pupils, the parents or the teachers, the results have been favorable to the platoon school. In our visits to the platoon schools pupils were frequently asked for their opinion on the organization. In a very few cases objections were made. The overwhelming majority of pupils seem to favor the new school plan. Various parent-teacher associations have indorsed the new organization, and the questionnaire submitted by the board of education to the various teachers shows an overwhelming percentage in favor of the platoon school.

Your committee paid particular attention to the charges that the platoon school was factorized and militarized. Our observations reveal no basis for these charges. In the transferring from classroom to classroom necessary in the platoon school there is no element of militarization. If the introduction into a school of an efficient method and tightening up of loose ends is factorization, then the schools have been factorized. We can see no objection in this. Your committee was impressed with the fact that the atmosphere of the modern platoon school is that of a club rather than that of a factory or an army post.

As for the morals of the pupils being affected adversely by the platoon system of schools, your committee is of the opinion that there is no basis for this charge. It is quite true that there is coming to public attention at this time a great deal of laxity of morals on the part of the pupils in our public schools. No connection, however, has ever been established between this laxity and the platoon system of organization. The causes for this laxity seem to lie in other directions than the platoon school.

Your committee also had opportunity to come in contact with reports of investigations that have been made by other committees into the platoon system of schools of Detroit. While your committee has no desire to enter into a controversy with other investigators of the public schools, we cannot refrain from commenting on these reports to some slight extent. A study of these investigations seems to reveal that they are the products of either biased or short-sighted minds. Many of the criticisms which they make are manifestly unfair, and some are so trivial that they are not worthy of consideration by a serious-minded person.

In conclusion, your committee desires to report that it believes the platoon system of organization in the schools is an acceptable plan for the following reasons:

1. It permits of an enriched curriculum.
2. It seems to provide a better education in the so-called tool subjects.
3. It permits of more individual expression.
4. It increases the per pupil capacity of the schools.
5. It reduces the per pupil cost of instruction, construction, and equipment.

REPORT ON TEACHERS' COUNCILS PRESENTED TO THE COMMITTEE ON RULES AND THE COMMITTEE ON SCHOOL ADMINISTRATION OF THE BOARD OF EDUCATION OF CHICAGO

Ladies and Gentlemen:

1. *Your resolution* of May 14, 1924, directed the superintendent, the business manager, and the attorney to present suggestions regarding new rules.

2. *Need be no contention.*—There is something about Rule IV, Section 15, "Teachers' Councils," that has given occasion to newspaper writers to use "fight," "feud," and other sensational terms in connection with it. As none of us, known to me, have considered this rule as different from any other, so far as the desirability of calm consideration is concerned, and as this rule has been given by others than us much attention, I submit this memorandum on it.

3. *Present rule.*—It organizes high-school teachers into a council pursuant to authority granted March 12, 1919, teachers to meet once a semester under superintendent's rules. It organizes elementary-teachers' councils pursuant to Board authority granted August 31, 1921, teachers to meet two afternoons a semester under superintendent's rules.

4. *What is "Board authority"?*—For high-school councils the Board action of March 12, 1919, page 243, is a grant of a request of Acting-Superintendent Mortenson to organize a high-school teachers' council to discuss educational questions.

For elementary councils the Board authority of August 31, 1921, page 62, is a grant of a request of Superintendent Mortenson that he "may dismiss schools whenever necessary in accordance with his plans for teachers' councils."

In asking for this, Superintendent Mortenson said that greatly improved conditions in the education of the children may be secured by providing opportunities for every teacher in the system to assist the superintendent with educational information and advice—vitalizing esprit de corps.

5. *Dismissal of classes to give way to council meetings.*—On February 1, 1924, a new superintendent was employed. Complaints of parents, teachers, principals, superintendents, and Board members were made with such apparently good reasons against dismissing classes for teachers' meetings that I deemed omitting class work for teachers' councils unnecessary, this being, as I supposed, in accordance with your Rule IV, Article 5, which states that it is based on Board action of March 12, 1919, and August 31, 1921. That Board action granted the previous superintendent power to dismiss school "whenever necessary." On May 8 the president advised me that there might be some basis to a claim made to him that there was a rule covering dismissal for council meetings. I issued Bulletin No. 68 May 8, 1924:

TEACHERS' COUNCILS

Follow last year's practice. The president of the Board of Education informs me that the attorney has found some hitherto unfiled and unreported document which, on examination, may have a bearing on the dismissal of children on account of teachers' council meetings and that, pending final decision, it would be well to follow, this week, last year's practice regarding council meetings. Please do so.

As you no doubt recall, the uncertainty involved as to rules was due to the fact that Superintendent Mortenson had not filed any "rules and by-laws adopted and approved" by him as required by your Rule IV, Article 2, Section 3, and consequently the attorney could not tell what the rule as to dismissal is. Thereupon, "to clarify the rules" a member of the Board of Education presented resolutions setting up teachers' councils under the direction of the superintendent, excluding principals and all others than teachers from the meetings and requiring the dismissal of school for these assemblages. This proposal is by your Board's resolution of May 14, page 1276, still "on file."

6. *Protests against dismissal of classes.*—The prominence given to the proposition to dismiss school for these teachers' meetings resulted in an extensive amount of protest against shutting down class work.

The official most familiar with the councils, Superintendent Mortenson, said, "No reason for the meetings in school hours;

work could be done as well other times. Too many withdrawals of teachers from school duty."

All of the assistant superintendents and all of the district superintendents and a large number of the teachers affirmed that there are no benefits from the councils other than could be secured as well without dismissing the classes.

The president had previously written me, "Nothing unless proved of distinct benefit should be permitted to take the children's time. I have no information as to what benefit the councils are."

7. *The public is opposed to dismissal.*—I have sixty-one spontaneous letters from citizens protesting against the use of school time for these meetings. All were unsolicited. The letters contain statements as follows and more to the same effect:

As a mother of school children, I have long felt that they are dismissed too freely. If any good has come from these meetings, it has not appeared. The teachers are not overworked. They have much more time than the most of us.

As a taxpayer, I am opposed to paying for these meetings. No other public servants give so little time to their work.

I have six children in school. I want them given full time.

I know the opinion of the people here. They are opposed to remitting school work to give way to teachers' meetings.

These meetings are robbing the children and robbing the taxpayers.

Some are exaggerated statements, but all show a real desire for a full school day.

I presume that you saw the sample canvass made of persons whose addresses were taken in order, unselected, from the Chicago telephone directory. The replies were 89 per cent, "I think it wrong to dismiss school children for teachers' meetings."

You have the petition of the Gage Park citizens against dismissal.

Whatever editorial comment I have seen was to this effect:

We can hardly remember a time when outside influence and internal squabbles have not been turning school administration upside down, one dog fight after another. No private business could survive such conditions, and the welfare of our schools cannot survive it. The citizens ought to protest. If they do not put the wrangling invaders where they belong, Chicago will not be able to get any competent self-respecting educator to work in the schools.—Editorial, *Chicago Daily Tribune*, June 16, 1924.

The Board files contain a resolution of the Illinois Federation of Women's Clubs adopted May 16, 1924: "It is our belief that the management should be under the control of the superintendent. The Federation of Women's Clubs pledges itself to support the superintendent." (This was on the matter of not dismissing for teachers' meetings.)

You have seen the auditor's estimate of the cost of the teaching time lost per year to be spent in these meetings: $150,000. You have been told also that double sessions and teachers' lecture courses make it necessary to send the children home in order that the meetings may be held. The question apparently is a matter of values. I have not been given reasons to justify dismissing the classes.

8. *Exclusion from council meetings.*—So far as I can find, the exclusion of principals, etc., from the councils was not contemplated by Eliot, Butler, Hart, and Dewey, whose names appear in the Board proceedings several times when the councils were advocated. The Civic Federation in 1900 indorsed the plan as "representing all grades from principals to kindergartners" (Board of Education Proceedings, January, 1917, p. 760). Dewey's statement is that the fundamental necessity is "a shared common interest; greater reliance upon the recognition of mutual interests" (Dewey, *Democracy and Education*, p. 100).

The proposed organization does not share our common interest.

The deBey-Sonsteby-Post report (Proceedings of the Board of Education, January 16, 1907, p. 760) makes Paragraph 1 of their resolution read, "All teachers and principals should be *ipso facto* members of the councils of their respective schools."

Article 1 of the Constitution prepared by the Committee on School Management May 8, 1907 (Proceedings, p. 1094), excluded no one from the councils.

The superintendent's annual report for 1913, page 121, describes councils with principals and superintendents as members.

All of the information I have been able to obtain as to the purposes of the teachers' councils is that they aim at the educational benefit of the community. This, too, is the aim of the principals. The exclusion of these officers from meetings professedly concerned with the main duties of the principals is an anomaly in educational

procedure not upheld by any professional treatises known to me. All of the arguments I have heard favoring exclusion are contrary to the better aim of co-operative discussion and democratic administration. The superintendent whose report shows the heartiest approval of the councils says of the meetings (it is to be recalled that teachers, principals, and superintendents were present): "The frankness and clearness of speech bore abundant testimony to the courage and dignity of the teachers of Chicago" (Superintendent's Annual Report, 1913, p. 124).

9. *New rule.*—Your resolution of May 14 directs revision of the rules. Obviously, Rule IV, Article 15, like all of the others, should be discussed in the light of experience. My suggested revision is in accordance with my judgment based on the best advice obtainable. It permits the superintendent to organize teachers' councils. It attempts to get rid of the complexity of the present rule which does not give the reader the whole rule but refers him to other documents, some of which are void by reason of neglect of the general requirement as to rules (see Rule IV, Article 2, Section 3).

10. *Obligatory or permissible.*—There have been some points raised in the newspapers as to whether the proposed rule makes councils permissible or obligatory. All of the information I can obtain is that every superintendent who has had teachers' councils has had them on his own request and organized on his own plans. What reason there is why this usage should be changed and councils made obligatory on the new superintendent does not appear. I venture that the newspaper reports that this new policy is to be employed does not originate with you. You are so cognizant of the large tasks confronting all of us and of the desirability of a simple working organization to effect them that I sincerely hope you will not propose to make obligatory what appears to so many advisers a complex and clumsy arrangement, opposed, as at present run, to fundamental principles of school supervision.

11. *Superintendent's duties as legally prescribed.*—I am, as several of you have said you are, desirous of knowing what the legal situation in the premises is, in order that whatever is recommended may be based on sound principles. The state law which the president gave me with the Chicago Board rules when I began

work with you seems to impose upon the superintendent as well as upon the business manager and upon the attorney and upon the Board certain duties which are inherent in the law and not delegated by the Board. In Section 130 the law requires the superintendent to perform certain specific duties subject to the approval of the Board. One of these duties is that "he shall prescribe and control discipline in and conduct of the schools." How that duty is concerned with the present question is explained to me as follows:

> The only power which the Board of Education has, by reason of said Section 129, over the three departments is one of approval of what the respective executive officers, who have general charge and control of the departments and the employees therein, propose to do. By Section 129 the Board of Education is given no power to initiate action in any of the three departments. By Section 129 the said Board, in the matter of the administration of the three departments, is placed in the identical position the City Council is by Section 129 of the School Act in the matter of the appointment of Board of Education members. By Section 128 the mayor is given the power to appoint Board members "with the approval of the City Council." No one contends that this gives the City Council the right to name Board members. The City Council can only defeat the mayor's proposals. The Board is in that identical position as to proposed acts of the superintendent of schools, the business manager, and the attorney, subject, however, to the exceptions hereinafter specified.
>
> The exceptions are found in Section 130 of the law and are two in number: (*a*) a power of the Board to initiate action in the Law Department by a two-thirds vote; (*b*) a power to initiate action in place of the superintendent by a two-thirds vote. The superintendent's duties which the Board may thus initiate are specified as appointments, promotions, transfers, sites, plans for buildings, textbooks, and apparatus. By Section 129 of the law the Board prescribes the duties of employees subject to the limitations of this act. One such limitation is that the Board of Education may not take from the superintendent and assume unto itself the control of the discipline in and conduct of the schools or of the employees in the educational department. But what the Board does not approve of he shall not do. The Board cannot impose its will in these matters against his judgment and decision. All and any rules in conflict with the law are invalid.

I get the foregoing opinion from the attorney who wrote the act. Obviously, the duties required by the statute cannot be waived by the superintendent to avoid personal discomfort or to quiet clamor. The intent of the law, in accordance with similar

legislation in other school systems, is to place certain professional responsibilities of school management beyond the reach of extraneous politics or of personal pressure. Unless a superintendent can justify the former conduct of the teachers' councils as productive of results warranting the acceptance of their unusual features, his acceptance of them contrary to his judgment would be a dereliction of duty. I found councils here. Numerous complaints of serious wastage in their present organization came from various sources. I asked for facts. Clamor followed. This is not a complaint. A perusal of the newspapers shows it to be a statement of fact.

12. *Advantages to community should be shown.*—The ordinary and regular administration of schools recognized by standard usage calls for meetings of teachers with their principals in order that the work of the schools may be kept progressing. Policies, changes, inquiries, suggestions, and reports go from the superintendents and come from the principals and teachers. I know of no educational writer on school supervision who concedes good administration possible without this. There is a chance to discuss, to correct, and to propose afforded any teacher who wishes to speak in the regular school meetings. There ought to be ten such school conferences a year in every school. The children's time should not be taken for them. This is a standard aid to good schooling. It has gone lame in Chicago. Principals report that with these meetings after school and with the council meetings in school time the regular meetings fail. I am unable to see why our schools should surrender the usual meeting in favor of the other. Before abandoning the standard usage I should like a strong array of facts showing the good results secured by excluding the principals from school conferences and by dismissing the children to give way to the meetings.

13. *Everybody's view.*—The advantages reported by other organizations, commercial, etc., in getting the opinions of everybody; the evident fact that one principal or superintendent cannot have as wide a view as thirty teachers; the well-known value of expression; and probably a dozen other reasons can be cited against the absurdity of trying to manage teachers as though they were lifeless cogs of a machine.

I do not find that your Chicago principals do so. I find that they consider a school staff a living organism and that they counsel with the members of it when they can. On page 89 of the year's bulletins (May 8) you will find this:

Teachers' councils—local meeting.—There having appeared in some of the newspapers statements that the superintendent of schools is opposed to meetings of teachers' councils, may I remind you that such is not the fact and that my previous bulletins have emphasized the need of maintaining regular sessions of classroom work. As I have previously suggested that the Board of Education furnish rooms for the meetings of these councils when not interfering with classroom work, may I ask you to make clear to the teachers that for any councils held at other than the children's class time the teachers may count upon using such rooms as you assign and that I will ask the Board of Education to approve such use.

In my report of May 5 to the chairmen of the Committee on Rules and the Committee on School Administration, I submitted the recommendation (p. 17) that a committee of fifteen persons representing different classifications in the department of education be charged with the formulation of plans whereby the superintendent may receive suggestions transmitted from an organization representing every branch of the service.

I also offered to ask the Board of Education to afford meeting-places in the schools for councils.

14. *Conclusion.*—There are so many large duties confronting all of us, so many more suggestions on the docket than we can possibly attend to, so much need of a simple standard organization of the school system that I sincerely recommend that you avoid maintaining any additional obligatory machinery, however attractive the theory of its workings may be. I am prepared to furnish details of the infelicities of the present plan which have been contributed by persons deeply desirous of having the schools get down to the expected service.

I have the usual scheme of educational meetings for the year participated in by all who will attend.

We all have more to do than can be done satisfactorily and desire procedure simplified, duties clearly outlined, and responsibilities placed and backed with sufficient authority to secure their acceptance.

WILLIAM MCANDREW
Superintendent of Schools

PSYCHOLOGY AS A BASIS OF EDUCATIONAL METHODS[1]

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It is a general requirement in all teacher-training institutions that somewhere in the curriculum the student shall take a course in psychology. The content of this course differs widely in different institutions, ranging from a descriptive account of infant behavior to the most abstract review of a metaphysics of the mind. During recent years a great deal of emphasis has been laid on certain statistical inquiries, intelligence tests, and the distinctions between children of large and small intellectual endowments.

In the midst of all of the variety which appears in these courses in psychology for teachers, there is one characteristic which is conspicuously common to all: they all center around the individual. Even where general tests are applied to a group of pupils, the results are always formulated in such a way as to concentrate attention on the powers, inherited or acquired, of the individual. It is the individual's instincts and the individual's learning curve and the individual's rank in reading and arithmetic that are set forth as the psychological facts which the teacher must understand and accept as guides in directing school practice.

The products of collective mental activity, such as language and social customs, get scant recognition in the books on educational psychology. If one looks in the indexes for the number of pages devoted to language and contrasts what is found with the attention given to instinct, one will be impressed with the fact that the intellectual achievements of the group are almost wholly ignored. For example, in the recent volume by Professor Gates[2] the words "language" and "speech" do not appear in the index, while "instinctive activities" are generously treated in twenty-nine

[1] This is the first of a series of articles on educational psychology.

[2] Arthur I. Gates, *Psychology for Students of Education*. New York: Macmillan Co., 1923. Pp. xvi+490.

references. Starch[1] refers to language scales but not to language and gives sixteen references to instincts. Thorndike[2] mentions language five times in his three volumes and devotes a whole volume to instincts.

When we consider the extent to which the school is concerned with the induction of pupils into the use of language, the curt treatment given to this topic in the textbooks on educational psychology can hardly be understood.

The explanation is to be found in part in the fact that the great leader of American psychology, William James, was not interested in the psychology of language, and the lesser writers of the younger generation have all imitated him in his emphasis on individual human and animal mental traits and in his disregard for the processes by which the race has accumulated intellectual capital.

The consequences of this failure to impress those who guide the education of children with the importance of group thinking and group action are clearly seen in certain tendencies which have of late become very conspicuous. Everywhere we find writers on education calling on the schools to pay greater attention to individual differences. The curriculum is to be reconstructed; the organization of classes is to be modified or abandoned; the natural impulses of children are to be accepted as guides in discipline; and everywhere the school is to give up its insistence on conformity to group demands in favor of individual tendencies.

It is little wonder that teachers-in-training and those who are experienced in the handling of pupils find themselves bewildered in their efforts to organize their school work on the basis of the kind of psychology which is thus dispensed to them. The student in the normal school learns long descriptions of instincts and finds himself little prepared by what he has been taught to teach pupils how to spell or multiply. The practical teacher is not a little confused to know what instinctive tendencies are satisfied by the exercises in the school subjects for which the board of education

[1] Daniel Starch, *Educational Psychology*. New York: Macmillan Co., 1919. Pp. x+474.

[2] E. L. Thorndike, *Educational Psychology*. Vol. I, pp. xii+328; Vol. II, pp. xii+452; Vol. III, pp. x+408. New York: Teachers College, Columbia University, 1913.

seems to have employed him; so he lays his psychology aside and goes about his daily tasks with the vague feeling, or even a pronounced conviction, that there is something in school work which transcends the theory that he learned in his normal-school course.

The fact is that educational psychology is radically deficient. It is in need of revision. It must be made to include a whole series of new chapters. There must be a chapter on the nature of language, one on the nature of the number idea, one on the nature of social customs, such as punctuality and politeness, one on the economic system, and additional chapters dealing with the other social facts which go to make up modern civilization. These chapters will set forth the fact that men have produced, through the co-operation of their minds, certain intellectual and social institutions which are no less real than the objects of the physical world in which we live. These institutions control human life in the highest degree. They have to be accepted by human beings as enormously more important than instinctive tendencies. In fact, the chief reason why men succeed in living together in a productive way is that they do not live by their instincts but under the guidance of far-sighted plans of co-operation. Any system of psychology is wholly inadequate as a basis for school practice which overlooks the fact that we live in an environment made up primarily of social institutions rather than of natural objects to which our instincts respond.

Furthermore, when one tries to give an adequate psychological definition of the school, one has to describe it as a place where children are sent to substitute for their instinctive impulses habits which are gradually developed in conformity with social institutions. There is no need of a school to teach children how to swallow. Nature has provided everyone with a well-organized motor mechanism of the instinctive type which takes care of all of the swallowing that the individual will ever have to do. The school does not have to teach children how to smile or how to frown. It does not have to teach them how to protect the eyes by winking or how to use their hands in grasping. These are instinctive acts. The school, however, has to give guidance in the appropriate use of these instincts in order that the right objects shall be grasped and

in order that smiling shall have the proper relation to good social taste. The school has to supplement natural impulses. Nature does not equip us with the English language or with the power to drive a pencil purposefully across blank paper or with a scheme for counting. The multiplication table is as far removed from instinct as human life is removed from life in an ant-hill or a beehive.

If the school is to perform efficiently its task of raising human behavior to a level higher than that at which the animals live, it will be necessary for educational psychology to include accounts of the higher forms of activity and to show clearly the steps by which children are to be raised from the forms of behavior for which personal inheritance has prepared them to those which are demanded in human social life.

Let us consider several examples. The first may be taken from the sphere of manual dexterity. The natural tendency of every child when given a pencil or a piece of crayon is to close all of the fingers on it and grasp it in the palm of the hand. Furthermore, his natural tendency is to draw lines in irregular patterns on the paper or blackboard without trying to make any definite or regular figures. The school, starting at this natural level, aims to direct the child's muscular contractions in such a way as to lead them to conform to models which the race has worked out through centuries of endeavor. The school patiently drills in the laborious task of holding a pencil, and later a pen, in three fingers and skilfully guiding the points of these instruments with rapidity and with a freedom from distraction which makes it possible to carry on during the performance an elaborate train of thought only remotely related to the pencil or pen and to the black lines which are produced.

What effect does school drill have on the individual's natural tendencies toward instinctive grasping? Anyone can see the answer to this question if he will observe early lessons in handwriting. When the little child is called on to cultivate a new and higher mode of behavior, his nervous system is excited in all of its parts. The child's feet and facial muscles are set in motion along with the hand which is being trained to take on a new and most complex form of action. The psychologist describes the child's condition as one

of nervous and motor diffusion. The diffusion of stimulations throughout the whole organism is the only possible way in which nature can begin at the bottom and build up a wholly new type of co-ordination different from the natural form of behavior with which inheritance endowed the child. Diffusion is the first stage in the acquisition of a new combination of muscular contractions to be guided by social demands.

The school is interested in the natural modes of behavior of the hands and fingers because it has to overcome these in developing penmanship, but it is very much more concerned with the stages through which the child must pass in ascending from diffusion to fluent co-ordination in writing. It has to study the letters with great care in order to discover the forms permitting the highest degree of fluency. It has to know the rate at which the child can leave diffusion behind and acquire fluency. It has to find out whether it is better to stress the demand for rapid movements early in the process or to seek in the first stages of instruction regularity of outline in the letters produced and postpone the cultivation of speed to a later stage.

The whole series of statements which have been made about handwriting can be condensed into a single formula. It is the business of the school in teaching handwriting to transform the child from a purely instinctive animal into a being capable of using a highly developed art which the race has evolved.

At the risk of too frequent repetition, it may be said again that handwriting is not an instinct; it is not natural for the individual; it is not a form of behavior which the individual invents or could invent; it is not a form of movement which can be acquired without drill. Handwriting can be perfected only through the exercise of the greatest concentration of attention on the part of the individual and through expert guidance from someone who has carefully studied the process by which the elaborate forms of dexterity are produced.

There are other types of training which the school provides in order to develop the pupil from a purely natural state into a state of civilized co-operation. Let us consider the way in which education has slowly brought the race from its original vague general thinking about quantity to the exact types of thought which are

constantly employed in modern business and modern science. Let us go back in imagination to the period in the history of the race when there were no weights and measures and no number system. When men traded with one another in those primitive times, they arranged their barter as best they could by inspecting the commodities which were to be exchanged and adjusting values in accordance with standards which were wholly indefinite. They took a handful of this or that or a pile of something. Slowly, as social life progressed, it became evident that justice to both parties in a transaction of exchange demands exactness and standardization. The slow process of evolving precise thinking began.

Something of the difficulty of evolving standards of measuring and counting will be realized when we recall the diversity of measures in different parts of the world even in modern times. Still more striking is the evidence which appears in the historical fact that Europe borrowed its method of counting from the Orient and acknowledges its indebtedness even today by designating as Arabic the numerals which it uses most commonly in commerce and ordinary life.

The task of evolving standards, measures, and a perfect system of enumeration has been accomplished. The task of inducting each child into the proper understanding and use of these instruments of civilized thinking is an ever new and ever difficult matter. The child is not by nature exact in his thought or given to the weighing and measuring of things. Society has had to set apart some of its most intelligent members and has charged them with the duty of seeing to it that children are taught to use measures and numerals. The resistant tendencies exhibited by children who become confused in the midst of the complex systems devised by society must be sympathetically overcome; the intricacies of our civilized life must be spread out in an order and form which will make it reasonably easy for the child's mind to see the plan. All of this must be done with due regard to individual differences in mental agility but with a firm insistence that the methods of society will have to be accepted by every individual.

It is little wonder, when one includes the complex psychology of society in his thinking, that arithmetic is one of the greatest stumbling blocks in our educational system. Arithmetic is not

the expression of an instinct. Thinking in numbers is not impulsive; it is not something which children invent spontaneously and carry to a highly perfected level because of their feeling that they need it to satisfy a craving of their own minds. Arithmetic is one of the most elaborate products of co-operative intellectual effort. Long generations have contributed to the perfection of the system. The Romans had a crude system; the peoples of northern Europe had a still cruder system as late as the sixteenth century. Then from the East there came a form of enumeration which had been up to that time unknown to the merchants and common people of Europe. It was so perfect a plan of counting, so complete a system of expression, that it was adopted by all civilized nations.

It has been suggested from time to time by educational reformers that if pupils are not drilled in the use of Arabic numerals in the lower grades and are allowed to go on untrained in the intricacies of addition and multiplication, they will, by the exercise of their own natural curiosity, gradually come easily and without effort into possession of the principles of mathematics and will be able to show perfection in this highly complex art. Such optimism about children's picking up arithmetic incidentally is based on the most absurd psychology. The psychology of arithmetic is the psychology of a race, not of an individual. The function of the school is not to wait for number to well up spontaneously in the child's mind like some natural expression of an inborn tendency. The function of the school is to take a child whose thinking is inexact and vague and to persuade that child that living in a civilized society requires a new type of concentration of attention, a new method of expression. The school must not only arouse a demand in the child's mind for this new type of exact thinking but also supply him with the system by means of which this demand can be satisfied. It must insist that its system and no other be used. If the child begins to use an individual system, such as counting on the fingers, it is the duty of the school to put a stop to this clumsy method of thinking and compel the child to adopt the better system which the race has evolved.

The school is society's agency for transforming children into social beings. Reformers may recommend to the end of time that

number be taught incidentally and maintain that penmanship is a strain on the finer muscles and hence should be postponed to an indefinitely later date in the hope that the pupils will pick it up, but the true teacher of children knows that such statements are not in accordance with the real needs of children and of society. Number has to be learned because nature does not give number to the individual as a part of his inherited equipment. In fact, the terms "learning" and "natural endowment" always have been antithetical and always will be. One has to learn just because one is not by nature provided with what one needs for living.

A third illustration which will help to reinforce the contention that education must be based on a study of social psychology is to be found in the modern demand for punctuality. Even the most casual observer of modern civilization cannot fail to be impressed by the fact that co-operative living depends on punctuality. Every time-table bears testimony to the necessity of a time system on which all of the members of society agree. The activities of men and women are often determined years in advance by the calendar and the clock. A very considerable portion of the population of a modern state devotes its energy to keeping the machinery of life moving on time. Think of those who make and sell time-pieces; think of those who send out time signals from observatories; think of the train-starters and the factory time-checkers; think of the boards of arbitration which decide hour-scales for laborers.

After considering the breadth and scope of society's interest in time, one begins to realize why the school objects to tardiness. Yet punctuality is not a product of nature; it is a product of social training. There is nothing spontaneous about the highly developed demand of modern life for strict conformity to the clock in the sense in which an instinct is spontaneous. Promptness is a social virtue.

The interesting fact for the student of educational psychology is that punctuality can, through training, be made into a personal demand and can be made to appear as a thoroughly established individual trait. Indeed, after a person has cultivated the habit of punctuality under the guidance of society, he becomes a center

for the propagation of the demand that everyone shall be prompt. There is no instinctive demand which is more insistent than the acquired demand for promptness. Witness the behavior of a man who is waiting for a belated meal or a train that is behind schedule.

The history of the training which society has given itself in reckoning time and in adjusting its routine to time measurement is as interesting a romance as has ever been written. The way in which the observations of the movements of celestial bodies were gradually systematized, the way in which mechanical devices which facilitate uninterrupted marking of time intervals were substituted for the observations of heavenly bodies, show how far man has made himself and his civilized life superior to the crude facts of primitive and instinctive nature.

All of this historical development is focused on the school child. He is required, without regard for his personal disposition, to move promptly and regularly with the group to which he belongs. He suffers all sorts of penalties if he fails to be on time. There is nothing more in opposition to individual nature than the punishment which is meted out to pupils for failure to be prompt. Such punishment is an expression of a demand of society, not an expression of a demand of unorganized individual human nature.

After a child has been duly trained to conform to this social demand, he will be in possession of a new personal habit and attitude. The important fact for educational psychology is that acquired habits of punctuality not only conform to social demands but become dominant methods of individual life. A punctual person is a new kind of a person. His methods of life are transformed, and, what is more important, his methods of thinking are transformed. Not only so, but he transfers the new attitude to all of the activities which he performs. His recreations become routinized; sleep and waking are no longer governed by the coming of darkness and light.

Other examples can be added to those which have been discussed. The customs of civility are good examples of the transformations which civilization has worked in individual human nature. Let us consider one such custom which has been established so firmly that it has finally become a law. It is now required by statute in the United States that all persons shall pass on the right anyone whom

they meet on the highway. An offender against this law is made to suffer material and personal penalties and has heaped on him violent reproof. Of course, it is evident at once that there is nothing natural about turning to the right. In some parts of the world society defends with equal vigor the rule that one shall pass on the left. Also, it is evident that the present practice is the outgrowth of a long evolution and not one which arose spontaneously in the minds of all men and commanded at once their approval and their willingness to bring to its defense the power of the group.

The convention of passing on the right grew out of social necessity. Two men who met on a narrow path, such as a mountain trail, had to devise some way of sharing the road. The man of superior rank, which at first meant the man of superior strength, pushed the weaker man aside. When two men of equal rank met in such a case, they sometimes decided who should have the path by trial of strength. In either case, the natural tendency manifested itself for the weak to defer to the strong. The psychology of the situation is obvious. Indeed, all that we describe in later social situations by such terms as prestige and rank was in the making when men met on the path, not because the path in itself conveyed the idea of prestige but because the social relations created a certain type of expectation and a consequent effort to meet this expectation.

As roads multiplied and social situations of the kind under discussion became increasingly frequent, the necessity of arriving at a form of expectation that could be more readily and safely acted upon led to the device of passing regularly in a fixed way. The growth of democratic ideas operated also to equalize the demands on all who use the road. The tendency to defer to rank, however, has not entirely given way even under modern conditions; the city street is closed to ordinary traffic to make way for a procession or for some highly honored individual; but, in the main, social convenience has reached the point where it dictates that an equal and clearly defined share of the road shall be given to each traveler.

If one notes one's own reactions in going along the highway, one finds that the drill through which society has put one results in a tendency to turn to the right even when no immediate social

necessity is present. If a driver of an automobile finds that he must turn out of the road to avoid some physical obstacle, he will turn to the right by preference, because his training has fixed his direction of action. The tendency to carry out this acquired habit is so strong that if by any chance one is prevented from doing what training demands, one often finds one's self aroused to anger and giving vent to vigorous demands that convention be respected.

Besides being recorded in individual habits, social conventions in some cases come to the kind of explicit formulation, which has been referred to in this case, where laws grow out of convention. We shall pass over the fact that society has found it necessary to set up in its law-making bodies a variety of special agencies to formulate pronouncements of its decisions and other agencies to enforce these pronouncements. It is enough for our present purpose to point out that a law is an explicitly formulated demand that individual habits shall be developed in compliance with the social will. All goes well when the law and the habits of individuals can be made to move in the same direction. Even where disagreements between individual habits and law are sporadic, society gets on fairly well. Sometimes it requires time to translate law into individual modes of behavior. Where there is a deep-seated opposition between law and individual habits, the clash sometimes becomes so serious that society suffers an upheaval.

The example does not need to be carried farther to make clear the relation between education and law. Civil law is not an expression of natural impulses; it is more often a restraining influence opposed to natural impulses. The theory of education which fails to recognize this fact and the other facts which this article has been emphasizing will in due time be recognized as deficient.

There has been endless sentimental nonsense written in recent years about instincts as the beginnings and goals of education. The authors of these one-sided and misleading statements are in many cases victims of an ill-advised effort to be scientific. They have what they think of as a psychological basis for their system of education. The trouble with them is that they have too little psychology. They have never studied the psychology of civilization.

HOW SCHOOLS CAN AFFORD HOME ECONOMICS

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The high per pupil cost of home economics courses has forced home economics out of some schools and endangered its retention in many others. Strangely enough, this danger to the subject has come in spite of the fact that there are no just grounds for it. Any possible saving to a community through eliminating home economics from its schools would be a mere bagatelle as compared with the reduction in household expenses which the subject rightly taught could bring about in that community. Since the danger actually threatens, however, home economics teachers must face it and endeavor to convince the taxpayers that the subject does not cost too much and that it saves the community far more than it costs.

To show the possibilities for a home economics teacher in such endeavor, this article has been written. It describes the work done by the writer in a junior high school at Beloit, Wisconsin, in 1922–24, where all of the eighth-grade girls took cooking. As no laboratory fee was charged, the expense had to be met either by the taxpayers or indirectly. While the article deals with only the foods side of home economics, the underlying principles are the same for all phases of the subject. The clothing teacher was doing parallel work in her courses. The methods of reducing expenditures for single dishes, for meals, and for laboratory running expenses will be discussed, as well as the effects on the teacher and the enrichment of the course produced by a deliberate effort to stress economy in handling the work.

Two kinds of food materials are chargeable against the cooking laboratory. These are the materials used for single dishes, like baked beans, beef roasts, or bread puddings, and the materials used for complete meals.

Single dishes are often most easily sold through the school cafeteria. Where this is not possible, a variety of ways of selling cooked foods for the benefit of the school may be adopted.

At the Beloit school, the food was, in most cases, sold to the girls themselves. They were always given the first chance to buy it, frequently at a lower rate than was allowed outsiders. In advance of the preparation of a dish which the girls might wish to purchase, they were told its price. Frequently they came prepared to buy portions. Thus, when cooked salad dressing was offered at five cents a cup to any girl who had her own container, mothers accustomed to buying commercial dressing took advantage of the bargain. Parker House rolls at fifteen cents a dozen were sold as fast as baked, forty-three dozen in all. The girls even took home things that adults would hardly bother with—prune puddings, for example. The milk necessary to give each of the five sections a lesson on cottage cheese was ten gallons. Distributed over five weeks, it made a substantial amount of the cheese, all of which, when mixed with coffee cream, was sold, at a profit, for ten cents a cup.

Customers who could be depended upon, if notified in advance, were deliberately sought. These were the janitors, the cooking teacher's landlady and the woman who ran her boarding-house, teachers who brought their lunch to school, and teachers who did light housekeeping. Thus a lamb-chop lesson paid for itself when each teacher bought a chop the day of the lesson and a portion of lamb croquettes with peas two days later. Beef stew with vegetables in family size for six was sold to the teachers. Pan-broiled steak was easily sold once a week to the teachers until it had been demonstrated to each class section. A few after-school food sales were held: a sandwich sale which disposed of the girls' twenty-five family-sized loaves of bread, a Christmas candy sale, and later a cooky sale. While the sales were successful, they involved more work than did the other methods.

The cost to the community for the ingredients of single dishes was in some instances reduced by encouraging the children to bring part of the materials for a dish and take home some of the finished product. Thus, a half-glass of sugar entitled a girl to a glass of

crab-apple jelly. Two-thirds of the sugar needed gave a child one-third of the candy made; the remaining two-thirds went into the candy sale. Fresh eggs brought to class could be taken home stuffed. At times, children donated food going to waste in home gardens, such as tomatoes, carrots, parsley, and crab-apples.

Cooked meals were sold either to the girls or to outsiders. When necessary, the school's daily program was changed on the day of the meal so as to make the cooking section come the first thing in the morning for a breakfast and either before or after noon for a luncheon or dinner. The meal thus took the place of a home meal, for which the girls were required to pay the price fixed, this price being below actual cost. The use of this plan necessitates announcing the meal some time in advance, for there will always be a few girls whose parents object to giving the necessary money. In such cases, the girls, if notified long enough in advance, will generally save their money for the meal themselves.

Opportunities to sell meals to outsiders were sought. A four-course dinner was served for the head of a Sunday-school department who wished to entertain five of her teachers. The girls prepared the annual dinner for the boys' basket-ball team. Another year it might have been possible to serve weekly noon meals to the teachers who eat luncheon at the school.

Occasional opportunities to sell cooked foods or to practice on materials furnished by individuals were sought. The girls prepared the refreshments for two teachers' parties and made pop-corn balls, sandwiches, and lemonade for other departments which furnished the materials. They ran a tea-room two evenings at a carnival with every dish, except one, a new experience for them. In the latter part of the year from one to three girls a week practiced on lunch materials furnished by teachers. This included cooking fruits and vegetables and making salad dressing, the only expense to the school being for the gas used.

Advantage was taken of free samples of materials offered by food-supply houses. Not only were enough junket tablets for class purposes donated, but each girl had a tablet to take home for a strictly free lesson. Cake flour, tapioca, macaroni, and milk powder were

obtained on the same basis. Demonstrators of a gelatin product gave valuable lessons to each class, paying over nine dollars to local stores for the material used.

Costs for both equipment and supplies were kept down by careful buying. In purchasing supplies the following economies were employed. Foods were not bought out of season. Eggs for cooking during the winter months were those water-glassed the previous spring when eggs were cheap, and the egg lessons themselves came in the spring. Neither inferior nor fancy high-priced goods were purchased. The first grocer from whom supplies were bought did not make helpful suggestions, but the second proved to be reliable and took an interest in helping the teacher purchase economically. Care was taken not to overbuy on non-returnable goods, and it was agreed in advance that unopened cans and packages could be returned. The grocer was instructed to telephone any unusual values in fresh fruits and vegetables, whereupon lessons were changed accordingly. On fats in particular, great savings were made. Little straight butter was used in cooking. Where a recipe called for butter, a mixture of one-third butter and two-thirds substitute was usually employed.

In securing equipment, the teacher investigated the possibilities before consulting the business manager. For example, tin dish-pans, which were rusting badly after one year of use and ruining the good towels and dish-cloths, were replaced with aluminum pans which were as good as new after being used for eighteen months. The teacher had recommended them at one dollar as against tin at sixty cents or granite, which chips easily, at ninety cents. The sewing department, as in many schools, made towels and dish-cloths without charge for the kitchen and curtains and linens for the dining-room.

The laboratory itself was at all times conducted with a view to keeping down costs without in any way detracting from necessary food values or palatableness. Inexpensive dishes were preferred to more costly ones, particularly for the hot school lunch. Here, for example, a pudding of oatmeal and cooking apples satisfied the patrons. There was no need to serve expensive desserts. The girls were trained to measure accurately. This not only kept down costs

but gave a better product. Utensils had to be scraped clean. As regular class exercises, recipes were changed to reduce costs. Without violating any principles of cookery, such changes as the following were made: reducing the amount of nuts, substituting cheaper fruits for more expensive ones, changing the kind of fats, and reducing the number of eggs. While some of the laboratory products, from their very nature, could not be sold and were consequently eaten by the girls, careful planning often used such foods in two or three lessons before they were eaten. For example, the bacon used in a bacon-frying lesson was not eaten until it had been ground and used as a ham substitute in an omelet in a later lesson. The bacon grease was used for French toast in still a third lesson. Thus the same bacon played an important part in three lessons. Poached eggs from one class were used for croquettes in the next. All cereals cooked in one lesson figured in another lesson. From the first day the girls were taught to save gas, water, electricity, and laundry bills. They learned that sun-dried dish-cloths and towels do not need ironing, which consumes electricity. A study of the refrigerator showed that it was cheaper not to keep the box iced continuously but to ice it once a week when the cooking periods had been properly grouped. Newspapers brought by the girls were used, whenever possible, instead of wrapping paper furnished at public expense. Loss of equipment to other departments was reduced to a minimum by charge slips.

Doubtless, the thoughtful reader has by this time wondered whether such rigid economies in the work will not result in the loss of essential educational values and grievously overwork the teacher. Such efforts at economy undoubtedly add to the work of the teacher, but this work need not be excessive if the girls are permitted and encouraged to save the teacher at every turn. They delight in taking orders, making deliveries, wrapping orders, and looking after collections. Furthermore, the unavoidable extra work for the teacher is more than compensated for by the fact that the economies make the courses partly self-supporting and give the girls certain educational values not otherwise obtainable.

In the work at Beloit the efforts at economy clearly produced five important educational values. (1) Most of the cooking could

be done in family-sized quantities. If a girl has made baked custards for six in the laboratory, she will be more likely to bake them at home than if she has made one for herself or two dozen for the hot school lunch. (2) Everything the pupils learned at school about reducing food costs could be profitably used at home, since a majority of the girls came from homes where such economies were sorely needed. Various girls reported material results in reducing their family gas and electricity bills, and one said, "Mother likes our recipes; she says they are so cheap." (3) It helped both teacher and pupils to practice an important principle of dietetics, that of three adequate meals a day with rest for the stomach between meals. The Monday study period did not see the girls developing the fact that eating between meals is harmful and the Tuesday cooking period see them eating their baked beans to avoid wasting the food. Instead, they sold the beans to the janitors. (4) The girls were taught that economy must never be at the expense of the day's food meeting the body needs of each member of the family. For example, water was seldom substituted for milk, but the reverse was often done, particularly in cooking meals. The comparative cheapness of milk was constantly emphasized. Again, butter substitutes were used in cooking meals, but the children had butter on their bread at those meals. Thus they found that food bills can be lowered without lowering food values. (5) The girls received definite training as citizens in helping pay for the course. They caught the spirit that they had no right to waste gas or anything else for which the public pays. They became watch-dogs of the public funds allotted to the cooking work.

AN INVESTIGATION OF CHILDREN'S PREFERENCES FOR PICTURES

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One generally accepted purpose of art education in the public schools at the present time is to train the individual so that he will recognize and enjoy beauty as it appears in the artistic productions of the race. The appreciation of beauty in pictures, sculpture, architecture, or elsewhere is a source of enjoyment that should be open to everyone. Standards of what constitutes real beauty vary with the amount of training and with the type of environment. It is the duty of the art teacher to establish high standards and to train her pupils in such a way that they will find real joy in good pictures, fine pieces of sculpture, or beautiful buildings.

As yet, no definite technique in the training of appreciation for beauty has been established. Art teachers have depended chiefly on technical work in drawing, painting, and designing to create standards of good taste. Sometimes this is supplemented with "picture study." Such study generally includes some historical facts about the pictures and the artists and an analysis of pictures according to the principles of composition.

Within recent years there has been a definite movement toward the use of the art gallery as an instrument in training children to know and appreciate good pictures and sculpture. Observations of lessons in art galleries show that one of two things is likely to happen. Too often the lesson is unorganized and purposeless. The children race through the gallery, seeing little and remembering less. In other cases the class is bored by a long analytical study of the pictures. The children are told which pictures are especially fine, and they are expected to develop automatically a liking for those pictures. To be sure, there are lessons taught in the art gallery which are more successful than these, but it is probable that the success is due more to accident than to design. The teacher

has no scientific basis for determining the method of procedure. As yet, we know very little of the process by which the individual learns to know and appreciate good pictures.

An effective technique for training appreciation will take account of the child's natural interests and capacities. The natural liking which children have for certain types of pictures should furnish a starting-point for investigation. Until we know what phases of art quality appeal to children, we are handicapped in helping them to acquire high standards of appreciation. It is useless to try forcing them to appreciate pictures in which they do not have a natural interest and which they do not understand. Training for the enjoyment of pictures must be based on the abilities of the child.

Fortunately, it is a comparatively simple matter to determine the types of pictures which children like best. The following is an account of a study made in the Public Art Gallery in Richmond, Indiana. It is not assumed that sufficient data were collected to form the basis of reliable conclusions as to the types of pictures which children prefer.

A collection of portraits on exhibit included thirty-two oil paintings, twenty-eight colored prints, and a number of miniatures, tintypes, and daguerreotypes. Classes of fifth-, sixth-, seventh-, and eighth-grade children were brought to the art gallery to see the exhibit, making a total of 939 children. As soon as each group arrived, the children were asked to look at all of the portraits carefully and pick out the one which they liked best. This was to be done without communication on the part of the children in order to prevent one or two strong-minded members of the class from influencing the vote. Each child wrote the catalogue number of the picture he liked best on a slip of paper and handed it to the teacher. The groups of miniatures, tintypes, and daguerreotypes were each given one catalogue number.

Table I shows that 82.6 per cent of the total vote was given to a group of eleven pictures. The remaining 17.4 per cent was divided among twenty-eight pictures which received less than fifteen votes each, leaving twenty-four pictures which received no votes at all. This would seem to indicate that children have a strong tendency to like the same pictures.

Picture 23, which received 22.9 per cent of the total vote, is the portrait of Leo Ornstein by Leon Kroll which is owned by the Art Institute of Chicago. The figure is represented in the act of playing the piano and is full of a fine living quality. The picture is considered very good by art critics and was awarded the Logan prize in 1919. The vote would indicate that many children instinctively choose good pictures when given the opportunity to make comparisons.

Picture 7, which received 16.2 per cent of the votes, is a well-painted portrait of a little girl known to many of the children. The artist was also known to many of them. These facts undoubtedly

TABLE I

DISTRIBUTION OF 776 OF THE 939 VOTES FOR THE PORTRAITS

Catalogue Number of Picture	Number of Votes	Percentage of Votes
2	48	5.1
5	68	7.2
6	26	2.8
7	152	16.2
14	107	11.4
16	25	2.7
17	21	2.2
20	27	2.9
23	215	22.9
25	25	2.6
33	62	6.6
Total	776	82.6

influenced the vote. The third most popular picture, No. 14, is the picture of a woman seated at a tea-table painted by Robert Grafton of Michigan City, Indiana. No. 5, which received 7.2 per cent of the votes, is a portrait of an art teacher well known to the children. The group of miniatures, indicated as No. 33, received the next largest vote, or 6.6 per cent. No. 2, which received 5.1 per cent of the votes, is a picture of a little boy by the well-known portrait painter, Wayman Adams. It is a strong, vivid piece of work and considered very fine. The little boy was not known by any of the children.

Five other pictures each received a little more than 2 per cent of the votes. No. 6 is a picture of a workman, shown as he paused

for a moment in his work, painted by Gerrit Benecker. The story-telling interest is quite evident. No. 20 is a portrait of a little girl by a New York artist, Ernest Ipsen. The little girl was not known by any of the children. Nos. 16 and 25 are portraits of a local artist known to many of the children. The two portraits were painted by different artists. No. 17 is a portrait of a woman known to many of the children.

The other votes were scattered among twenty-eight pictures; sixteen were oil paintings, all of adults except two. These oil paintings ranged from small to large in size and were of average merit. The other twelve pictures were colored prints of great masterpieces, some of which the children had studied in their art classes, which fact may account for their selection.

TABLE II

DISTRIBUTION OF 596 OF THE 771 VOTES FOR THE PAINTINGS BY THE RICHMOND ARTISTS

Catalogue Number of Picture	Number of Votes	Percentage of Votes
30	55	7.1
31	329	42.7
32	68	8.8
41	126	16.3
62	25	3.3
Total	603	78.2

The other portraits—six oil paintings, sixteen colored prints, the group of tintypes, and the group of daguerreotypes—did not receive a single vote. It is interesting to note that out of sixty-three portraits eleven pictures received 82.6 per cent of the votes and twenty-four pictures did not receive any votes.

An exhibition of paintings by Richmond artists included seventy-four oil paintings, water colors, and pastels. Most of the artists were known personally or by reputation to many of the children. However, each artist exhibited more than one picture, and many of the pictures were not legibly signed. Therefore, it is safe to assume that each child made a selection independent, to some extent, of his liking for a particular artist.

Fifth-, sixth-, seventh-, and eighth-grade children visited this exhibit and followed the same procedure as was described in the case of the exhibition of portraits. Table II shows that of 771 votes 78.2 per cent were distributed among five pictures. Forty-six pictures received less than twenty votes each, and twenty-three pictures received no votes. Picture 30, which received 7.1 per cent of the votes, is a large picture called, "Woods in October," painted by J. E. Bundy, an artist of national reputation. No. 31 is a picture similar in size and character, painted by the same artist and called, "The Beech Wood." This picture received six times as many votes as "Woods in October." Two differences presented themselves. In "The Beech Wood" there are three cows in the middle distance and three large tree trunks in the immediate fore-

TABLE III

REASONS WHY THE CHILDREN VOTED FOR "THE BEECH WOOD"

	Frequency
Autumn scene	182
Color	136
Cows	63
Sunshiny day	13
"Looks natural and real"	134
"Way it is painted"	37
"I know the place"	34
"Stands out well," "clear," "plain"	4

ground. In "Woods in October" the trees are kept in the middle distance, and there are no cows, but otherwise the pictures are very similar in color and treatment. One might assume that the children preferred "The Beech Wood" because of the cows. However, only sixty-three children mentioned the cows as a reason for voting as they did. At this exhibit the children were asked to write the reasons for their selections.

Table III shows the reasons given by the children for their choice of Picture 31. Most of the children gave more than one reason for liking the picture. Many of them liked it because of the color, the woods, or the way it is painted, or because it is an autumn scene or a sunshiny day, or because it is "natural" and "real." However, any of these reasons might apply to No. 30. Some of the children mentioned the cows, and four said that the

picture is "clear" or "plain" or that it "stands out well." This may refer to the three large, clearly defined trees in the foreground. Many of the other children may have liked the picture for this reason without being able to account for their selection. It is reasonable to assume that a child is more familiar with the landscape near at hand than with that at a distance.

Picture 32 is a well-painted portrait of a little boy. No. 41 is a rather lurid sunrise effect and is considered a poor piece of painting. No. 62 is a small picture showing a sunlit back-yard.

An exhibition of paintings by Indiana artists consisted of one hundred oil paintings, water colors, and wood-block prints. There were 1,092 children who visited the exhibit and voted for their

TABLE IV

DISTRIBUTION OF 857 OF THE 1,092 VOTES FOR THE PAINTINGS BY THE INDIANA ARTISTS

Catalogue Number of Picture	Number of Votes	Percentage of Votes
24	33	3.0
25	38	3.5
27	44	4.0
31	46	4.2
32	46	4.2
45	27	2.5
63	56	5.1
81	38	3.5
92	108	9.9
100	421	38.6
Total	857	78.5

favorite picture. Table IV shows that 78.5 per cent of the votes were for ten pictures, each an oil painting. The remaining 21.5 per cent of the votes were scattered among forty-three paintings, and forty-seven pictures received no votes at all. Pictures 24 and 25, which are similar in character, were painted by J. E. Bundy, the artist who painted the most popular picture in the exhibition of paintings by the Richmond artists. No. 27 is a nude female figure, with a brilliant blue-green background, and won the prize at the exhibition. Pictures 31 and 32 are small pictures of sunlit gardens and houses. Pictures 45 and 92 are landscapes full of lurid, unreal color and are considered very mediocre pieces of painting. Picture 63, which received 5.1 per cent of the votes, is a

painting of a castle situated on a high hill. The painting is full of imaginative quality. Picture 81 is a picture of a sugar camp. The picture in this exhibition receiving by far the greatest number of votes, 421 or 38.6 per cent, is No. 100, "Mussel Rocks" by Louise Zaring. This painting is considered very good work. It shows brilliantly colored waves dashing over great rocks in the foreground.

When the children visited this exhibition, the pupils in some of the classes were not asked to select the picture which they liked best until after a lesson in which the teacher tried to emphasize the merits of certain pictures. Pictures 15 and 98 were discussed; yet each of these pictures received less than fifteen votes. Evidently the instruction had very little to do with the choice of pictures. In every class there was a large vote for "Mussel Rocks," which was not mentioned in any of the lessons.

CONCLUSIONS

1. There is a marked tendency for the majority of children to like the same pictures. This is noticeable in the records of votes from each of the three exhibits. A large number of votes went to a few pictures, and many pictures received no votes at all. The pictures receiving large percentages of the votes are probably typical of the types of pictures in which children are interested and which they are capable of appreciating.

2. Most children show a tendency to choose pictures which are examples of good painting. Each of the three paintings receiving the largest percentage of the votes is considered an excellent piece of work by art critics. In only three cases did pictures of doubtful quality receive a vote worthy of mention. When children are given the opportunity to compare good and poor paintings, they are likely to choose examples of good painting.

3. Children like pictures of people, places, or incidents with which they are familiar. In the portrait exhibit five of the most popular pictures were portraits of people whom some of the children knew. "The Beech Wood" is a picture of a wood scene typical of the scenes with which all of the children are probably familiar. Pleasure in these pictures is probably due to the fact that the children can readily identify themselves with them.

4. Children show some interest in pictures of children. It has always been assumed that children like pictures of other children, but this fact has probably been exaggerated. In the portrait exhibit the picture which received the highest percentage of votes was not a picture of a child. It will be noted also that of the children's portraits receiving votes the most popular was the portrait of a little girl whom many of the children knew personally.

5. Pictures of things unfamiliar to the children but about which they have read and heard are popular. "Mussel Rocks" was probably very popular because all of the children have heard about the seashore although most of them have never seen it. The picture appealed to their imagination. The same is true of the picture of the castle.

6. Pictures which tell a story appeal to children to some extent. This is a fact which art teachers have always assumed to be true. However, it may not be so great a factor in awakening appreciation for pictures as has been supposed. A study of the data reveals the fact that many pictures having an apparent story interest received less votes than other pictures. For example, "Mussel Rocks" received eleven times as many votes as the picture showing the activities of a sugar camp.

7. Children like pictures in which there are a few large, easily distinguished objects in the foreground. This fact was demonstrated by each of the three most popular pictures. It is reasonable to assume that children are more familiar with scenes near at hand. They have not yet learned to see panoramic views as well as the closer views or to note the atmospheric effects in the middle distance.

8. Instruction influences only to a small extent a person's liking for certain pictures. A study of the technique and composition or facts about the artist apparently contribute very little to the enjoyment of the picture.

There is need for further investigation to determine more definitely the types of pictures which children like best. The data here given are insufficient for the drawing of reliable conclusions. Further investigations will verify or disprove the conclusions presented.

THE TECHNIQUE OF CURRICULUM-MAKING IN ARITHMETIC[1]

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In the new technique of curriculum-making which is being developed by numerous investigators, one basic assumption is everywhere accepted: We must find those matters which actually function in the lives of men and women. In the case of arithmetic, therefore, the first question which arises is, Under what circumstances and in what specific ways does arithmetic function?

There seem to be two general kinds of situation in which arithmetic usually functions. On the one hand, we use arithmetic in taking care of the quantitative matters involved in our *practical affairs*. In carrying on our vocational labors, for example, we must often count, weigh, measure, proportion, summate, divide, and otherwise deal with things quantitatively. In the care of our health we are concerned with the quantitative aspects of temperature as shown by the thermometer, with the balancing of the food ration, and with certain other matters which usually are relatively simple. As a citizen and a member of the community, one is concerned with taxes, budgets, public expenditures, standards of service in various lines, insurance, pensions, and numerous other matters which require the use of arithmetic in performing one's functions. In the distribution of one's income, in buying and selling, in keeping the family accounts, in taking care of one's savings, again there is a continuous call for exact count and computation. For the practical field, the task of curriculum-making, therefore, is to find all of the practical situations in which arithmetic is used, the kinds of arithmetic used, and the ways in which it is used. Sometimes it is used simply in viewing quantities, measures, sizes, relations, etc., for the sake of accurate thought and judgment; sometimes it is used

[1] This is the second of a series of articles on the technique of curriculum-making.

for computation or the solving of problems in arithmetic which are concerned in the practical activities.

In addition to these practical activities of various kinds, we can distinguish an equally large field of human activity, which, while of the utmost practical value, is not practical in quite the same way and is not usually conceived of as being so strictly utilitarian. For example, when one reads a descriptive and historical account of the astronomical universe, one must continually deal with large numbers which relate to sizes, distances, speeds, ages, temperatures, ratios, proportions, and other matters that require constant use of arithmetic. Most of this spacious astronomy, however, lies outside of the zone of one's practical activities. One's reading is simply a matter of intellectual exploration, and one's arithmetic is an instrument of thought indispensable to the exploration.

As one reads accounts which relate to the population of the country, its wealth and resources, and its growth during the past two centuries, one is continually dealing with matters in a quantitative way but not for any utilitarian or practical purpose. As one views the baseball batting averages and percentages as published daily in the newspapers, one is not doing it for the sake of managing any of one's practical activities. One is simply looking at certain human affairs in which one is interested. These are typical parts of one's non-utilitarian intellectual living. Arithmetic in this case is a necessary tool of thought which is for its own sake and not for anything that lies beyond. In the new technique of curriculum-making in the field of arithmetic one must find, therefore, those intellectual activities involved in viewing the world of man and of nature to which wide-awake individuals devote so much of their time. There is a possibility and even a probability that these apparently non-utilitarian activities demand a larger use of mathematics as a mode of thinking than do the practical activities.

There is a third, but apparently quite minor, way in which arithmetic functions. There are occasional persons, more frequently children and youths, intellectually alert, who find the number system a very interesting thing in itself. To them it is a field of intellectual exploration, a realm of problems and puzzles and interesting relations which appeal to them just as problems and puzzles and interesting things of any sort appeal to the intellectually alert.

To them arithmetic is a field of valuable intellectual play. As we come to recognize the great value of play as a function in human life, we must recognize this as one of the legitimate and profitable ways in which arithmetic may function. In this particular mode of functioning one may follow mathematics far beyond what is of service either in one's practical affairs or in one's reading. It is, however, a legitimate mode of functioning, provided, of course, that it is not carried to such excess as to result in intellectual disproportion and in the use of time which is needed for more profitable types of leisure occupation. While we must recognize this third type of arithmetical activity as legitimate and actual, we probably should note that it is relatively infrequent, except on the simpler levels, and for almost all persons can be sufficiently taken care of as a mere incident in connection with the two major types of arithmetical activity.

There is one very elusive and baffling curriculum problem which confronts schools of every level. This is the division of mathematics into that which is the general need of all men and women and that which is the specialized need of those in specific occupations. The new technique of curriculum-making assumes that individuals should be trained to perform the functions which they are going to perform and that we are not justified in giving any kind of training whatsoever except as we are reasonably certain that the training is going to function. This means that we cannot give anything in the curriculum which is designed for the performance of vocational labors until the individuals who are being trained have chosen their vocations. The arithmetic of engineering is very different from the arithmetic of dairying, and the latter is equally different from the arithmetic of the bookkeeper who works with speed and accuracy. We cannot give specific vocational arithmetic to a child going into one of these occupations until we know the specific occupation into which he is going. Vocational applications of arithmetic are therefore shut out until the pupils have chosen their occupations.

In the elementary schools and for the most part in the junior high schools we are training individuals who have not yet chosen their occupations. We cannot, therefore, give arithmetic for vocational purposes. We can only give that which is needed by all men and women. As we make analysis of the practical activities

and of the reading activities, we discover that there is a great deal of this general arithmetic needed, far more than is required by the large majority of vocations. As we provide for the common elements of arithmetic, therefore, needed equally by all for their general purposes, we are at the same time providing for all of the arithmetic that is needed by the large majority of occupations. Where any occupation demands more than that commonly needed for general purposes, quite obviously it should be a part of the strictly vocational training *after* one has begun specific training for one's occupation. A good example of this is to be found in the commercial arithmetic of the commercial courses. The students have had the general arithmetic in the elementary school, but this does not carry them far enough in matters of speed, accuracy, and the use of certain special types of process. The vocational commercial course, therefore, assumes that they have had a certain amount of arithmetic. It takes the students at that point and carries them forward to the point demanded by the occupations of bookkeeper, salesman, clerk, and advertiser. Obviously, this is the proper method of managing the arithmetic for any vocation which calls for anything beyond the usual need.

In the new technique of curriculum-making, for that arithmetic which is to be provided in the non-vocational elementary and junior high schools, we must find those life-situations in which *all types* of men and women use arithmetic. In other words, we shall definitely exclude the vocational, leaving the analyses for this level to the schools which lie beyond these lower schools of general training.

The method of discovering the arithmetic needed for *practical* purposes is well illustrated by the investigation made some years ago by G. M. Wilson[1] of the actual uses of arithmetic in adult affairs. Using a rather elaborate technique, he discovered the arithmetic problems actually solved during two weeks by more than four thousand individuals living in Iowa, Kansas, and Minnesota. These were distributed among approximately 150 occupations. He found the situations in which arithmetic was functioning. In 83 per cent of the cases, these were situations in which goods were bought and sold.

[1] Guy Mitchell Wilson, *A Survey of the Social and Business Usage of Arithmetic.* Teachers College Contributions to Education, No. 100. New York: Teachers College, Columbia University, 1919. Pp. vi+62.

Eleven per cent of the problems involved money but not buying and selling. These related to interest, rent, insurance, builders' estimates, banking, savings, simple accounts, discounts, taxes, real estate, freight, express, and minor matters. The remaining 6 per cent of the problems related to time or hours of labor, the capacity of containers of various kinds, estimates of quantities of building materials, carpeting, papering, excavations, gasoline, drug mixtures, etc.

As he discovered the practical situations in which arithmetic functioned, he noted the arithmetical processes which were employed within those practical situations. The processes found were: multiplication (6,974 cases), addition (4,416), subtraction (2,833), division (2,437), common fractions (2,171), accounts (1,212), percentage and its applications (1,060), simple denominate numbers (707), cancellation (62), mensuration (12), decimals (7), special forms of counting (4), and square root (3)—a rather brief list.

He was not content, however, with finding simply the general types of operation performed; he made an analysis of the *kinds* of problems solved. In the problems in addition, for example, he discovered the frequency of one, two, three, and more places in the addends and the number of addends involved in the problems. In the case of the fractions he discovered the types of fractions which were actually used.

It is unfortunate that Professor Wilson did not distinguish the vocational uses of arithmetic from the general uses. The problems came from men and women acting in both their general and their vocational relations. Some of the problems are therefore vocational. It seems, however, that in the majority of the cases where the problem was a vocational one on one side of the transaction, as the problems of the banker or insurance agent, it was at the same time a problem of the general type on the other side of the transaction. It is probable, therefore, that the results are not appreciably deranged by the failure to segregate the purely vocational problems.

Professor Wilson found that certain items sometimes taught in arithmetic are employed so rarely that we can regard them as practically non-existent. These are: decimals, except in United States money; apothecaries' weight; partial payments; partnership; square root; proportion; and troy weight.

Many matters commonly dealt with in arithmetic were not discovered as functioning in human life at all. These are: greatest common divisor and least common multiple beyond the power of inspection; long confusing problems in common fractions; complex and compound fractions; reduction of denominate numbers; table of folding paper; surveyor's table; tables of foreign money; addition, subtraction, multiplication, and division of compound numbers; longitude and time; Cases II and III in percentage; compound interest; annual interest; domestic and foreign exchange; true discount; partnership with time; ratio beyond the ability of fractions to satisfy; most of mensuration—trapezoid, trapezium, polygon, frustum, and sphere; cube root; and the metric system.

Professor Wilson makes no claims that his results are final. He was developing a technique and making one contribution. It was the first of a large number of analyses which must be made by way of discovering the exact situations within which arithmetic functions and the exact types of arithmetic which function. A few other studies of similar character, though slighter, are already in print. With their appearance, one thing is certain: No wide-awake course-of-study committee can ever again proceed entirely on the basis of guess and opinion and special predilection when it undertakes to make a course in arithmetic. The evidence is not yet sufficient to rule out mere professional opinion, but it is sufficient to modify it rather profoundly in arriving at its conclusions.

One is rather surprised to discover, in the findings of Professor Wilson, the relative absence, for example, of decimals, of Case II in percentage, of the metric system, and of fractions with denominators larger than sixteen. Does this actually mean that we might greatly diminish attention to these matters in arithmetic courses or even eliminate them? In replying to this question, it must be noted that Professor Wilson was analyzing only the *practical* situations and discovering only the *practical* uses of arithmetic. He was not even asking for all of the arithmetic used in those practical situations. He was discovering only the *problems* that were *solved*. The arithmetic of practical situations is much more than the solution of problems. It is an instrument for the presentation of facts with the degree of exactness required for practical thought and judg-

ment. One may use it abundantly for the purpose and not solve any problems at all.

One must also note that Professor Wilson made no attempt to analyze or even to discover those non-practical intellectual activities in which one is simply observing—usually in one's reading—man, human affairs, economic and social relations, and the environmental background of these matters. He did not attempt to show us arithmetic as an instrument of thought in this continuous observation by alert individuals. We must know the kind of mathematics which enters into this latter type of functioning before we are ready to decide as to the need of decimals and several of the other items.

An unpublished study[1] by H. W. Adams makes an attack on this latter problem. Mr. Adams assumed that all portions of the newspapers and weekly and monthly periodicals are to be read by the general public or by some non-specialized but interested portion of the general public. He analyzed all pages of one issue of each of the following newspapers and periodicals: the *Chicago Herald and Examiner*, the *Chicago Evening American*, the *St. Louis Post-Dispatch*, the *Springfield, Missouri, Republican*, the *Springfield Leader*, the *Lebanon Rustic*, the *Pathfinder*, the *Furrow*, the *Dearborn Independent*, the *Springfield Laborer*, the *Cosmopolitan*, the *Woman's Home Companion*, the *American Magazine*, the *Household*, the *Pictorial Review*, the *Woman's World*, the *Literary Digest*, the *Modern Priscilla*, *McCall's*, and the *National Geographic Magazine*.

These twenty publications are of very diverse character. They are published in different parts of the country and are designed particularly for different groups within the population. Not one of them, however, is technical in the sense that it serves any vocational group. Each of the weekly and monthly periodicals circulates widely throughout the country and claims a circulation of more than six hundred thousand copies. To discover the mathematics employed in the news, special articles, editorials, advertisements, legal notices, market reports, sporting pages, etc., of these publications is to secure at least a considerable body of evidence as to the

[1] H. W. Adams, "The Mathematics Encountered in the General Reading of Newspapers and Periodicals." Unpublished Master's thesis, Department of Education, University of Chicago (August, 1924).

mathematics which functions in the current thought activities of the general population.

The arithmetical matters discovered were classified into sixteen groups:

1. Dates—day of the month, year, and hour
2. Addresses—street numbers, room numbers, or post-office box numbers
3. Telephone numbers
4. Numerals
5. Roman numerals
6. Money
7. Common fractions
8. Decimals
9. Percentage
10. Ratio
11. Denominate numbers
12. Mathematical terms
13. Graphical representation
14. Mathematical ideas or expressions
15. Problems
16. Higher mathematics

Dates were very numerous. Numbers were used to designate the year—in a few cases B.C. but usually A.D.—a total of 1,827 times. The day of the month was presented 1,670 times, and the hour and minute of the day was shown 969 times. These figures show that one needs to be able to see in arithmetical terms the entire time series, whether immediate or historical.

Street addresses to the number of 3,378 were found. While they were relatively simple, they occur in a surprising variety of forms:

1819 Broadway, Dept. 909
1150 Buescher Blk.
611–631 Massasoit Building
696 No. 230 East Ohio Street
Box 7461–C, Scranton, Pa.
Studio 424, 100 5th Avenue
Dept. 261, 4711 N. Clark Street
Desk 21–A, 416 West 13th Street
Dept. G–81, Drexel Avenue and 58th Street
R. No. 1, Box 36

A total of 1,713 telephone numbers were discovered. These also occur in a variety of forms:

Main 8917	2619
Grand 1361-W	17-F-32
548-A Eiler	3007-W
Main 0010	30-F-3

Figures employed to designate the numbers of things involve a very wide range. One finds in every issue of the newspaper such figures as the following:

death rate per 100,000 persons per annum
2,000 miles
167 years ago
20 days
27,000 persons killed by autos
47 servants
25 soldiers
80 civilians
600 workmen
50 words
cars containing 200 persons
14 negro high schools
15 teacher-training schools
10,000,000 bottles
30 applications
42 keys
84 characters
55,000,000 auto tires
255,000,000 packages of breakfast food
531 electoral votes
52 issues
50 crematories
booklet No. 152
pattern No. 4410
Proverbs 18:24
300 weeks
58 years old
tobacco cure used by 400,000 men and women

Of numbers so used, not counting United States money, there was found in the issues of these twenty newspapers and periodicals a total of 21,916. Most of these were one- or two-place numbers, although some of them were of nine or more places. The largest number found had eighteen places. The distribution is shown in Table I. It is obvious that one needs a command of the number system as a tool of thought up to ten or twelve places. Beyond this, so far as the immediate evidence goes, there seems to be no great need.

To what extent do Roman numerals function in human experience? The evidence found in these publications is to the effect that Roman numerals are used to number volumes of books, newspapers, and periodicals; chapters of books; and sections of chapters.

Roman numerals were found in 148 cases, ranging from I to XCVII, or we may say the entire number series up to one hundred. Whether Roman numerals beyond one hundred are used to any appreciable extent will require the assembling of further evidence.

TABLE I

	Frequency
One-place numbers	9,625
Two-place numbers	8,600
Three-place numbers	1,777
Four-place numbers	1,425
Five-place numbers	308
Six-place numbers	88
Seven-place numbers	64
Eight-place numbers	19
Numbers of nine or more places	10
Total	21,916

A special study was made of the frequency of numbers which relate to money. The frequency of financial figures of different sizes is shown in Table II.

TABLE II

	Frequency
1 cent to 10 cents	252
11 cents to $1.00	3,592
$1.01 to $10.00	4,660
$10.01 to $100	2,828
$101 to $1,000	727
$1,001 to $10,000	333
$10,001 to $100,000	164
$100,001 to $1,000,000	100
$1,000,001 to $10,000,000	42
$10,000,001 to $100,000,000	44
$100,000,001 to $1,000,000,000	26
$1,000,000,001 to $100,000,000,000	11

In the matter of foreign money such expressions as the following were found:

50,000,000 German marks
20,000,000,000 German marks
90,000,000 Italian lire
25,000,000 Japanese yen
48,000 Indian rupees
18,450,000 English pounds
150 English shillings

3 English three pence
3 English guineas
1 English half-crown

We are getting away from the teaching of the tables of foreign money for the sake of an artificial solving of problems in the arithmetic classes. Yet the matters met with in current publications indicate the need of some understanding of the money systems of other countries. This does not necessarily mean that we need to be able to solve problems involving foreign money. As a matter of fact, most of the arithmetic discovered in these publications is not the arithmetic of solving problems but the arithmetic of quantitative thought relative to community, state, national, and world affairs. It is a *vocabulary*.

The common fractions found in the twenty publications are practically identical with those found by Professor Wilson in prac-

TABLE III

	Frequency
One-place decimals	36
Two-place decimals	48
Three-place decimals	394
Four-place decimals	3
Five-place decimals	1
Six-place decimals	3

tical affairs. Only six fractions of a total of three thousand had a denominator larger than sixteen. This is one in every five hundred fractions met with. It is probable that it would be no serious disadvantage if one were unable to deal with one fraction in every five hundred. It must be noted, however, that the largest denominator found was ten million. A second fraction discovered was the famous $\frac{44}{100}$. The occasional occurrence of fractions of *any* numerator and *any* denominator seems to make it advisable that alert individuals be familiar with the entire range of possibility.

It seems that decimal fractions practically never occur in the practical operations of men and women in Iowa, Kansas, and Minnesota. The situation is quite different, however, in the field of one's reading. The periodicals reveal the use of decimals ranging from one place to six places, not including the decimals employed for cents in United States money. The smallest decimal amount found was .000012; .97 was the largest. Table III shows the frequency

of the decimals found in a random sampling of the newspapers which covered only a portion of the whole. In the sporting pages of the newspapers, one sometimes finds long columns of three-place decimals. This accounts for the great preponderance of decimals of this size shown in the table. The large number of decimals found in this relatively small sampling and their wide range indicate the desirability of complete familiarity with the entire decimal system as a tool of quantitative thought. Even if we do not employ the decimal system in the solution of ordinary practical problems, we need to use it in our thinking, which after all is just as practical a thing as anything else.

Not only was there a wide range of decimals, but such mixed decimals as the following were found: .0041$\frac{1}{3}$, .38$\frac{1}{3}$, .42$\frac{1}{2}$, .44$\frac{1}{2}$, .30$\frac{3}{4}$, and .43$\frac{1}{4}$.

Percentage figures were found in a great variety of connections, of which the following are examples:

Overland sales increased 177%.
Ivory soap 99$\frac{44}{100}$% pure
Denmark taxes autos from 15% to 30%.
bank pays 4% on savings
40% increase in salary
earning power is 300% greater than the salary drawn at the time of enrolment
On the average, meat is sold for 22 to 27 per cent above the price paid for it to the wholesaler.
Auto accidents for 1923 were 13% greater than for 1922.
the legalization of 2.75 per cent beer
The surtax would begin with one per cent on incomes in excess of $10,000.
easy to raise 98% of every hatch
700 per cent increase in the servant tax
adds 1,000% to the baby's comfort
40% off of marked price
75% of football is above the neck

The percentages found covered such a wide range as the following: 1$\frac{1}{2}$%, 1$\frac{3}{4}$%, 2%, 2.75%, 3%, 5$\frac{1}{2}$%, 6%, 25%, 33$\frac{1}{3}$%, 40%, 76%, 80%, 95%, 99$\frac{44}{100}$%, 100%, 177%, 360%, 400%, 700%, 1,000%, 1,300%, and 1,500%.

The actual number of percentage figures found is shown in Table IV. In order to understand the meaning of some of these per-

centages as they are read, it is clear that one must visualize the relation of the percentage to the base. This is Case II in percentage. While this case seems to have been absent from the actual problems of Professor Wilson's study, it is difficult to see how one can understand the meaning of 1,500 per cent except as he sees the relation involved and the way in which the 1,500 per cent is derived from this relation.

Simple ratios were frequently found and were expressed in a variety of ways: 30 to 1, 15 per 100,000, 1 in 1,000,000,000, 9 times out of 10, a 44-50 mixture, a 5-3-3 ratio, 35 to 24, 1,065 to 44, half and half, fifty-fifty, 1,007 to 82.5, and 11.5 to 100,000.

The large majority of ratios involved numbers smaller than ten. There are so many ratios involving large numbers, however, that the general conception of ratio needs to be familiar to the reader. He may not be solving problems involving ratios, but he needs to

TABLE IV

	Frequency
One-place percentages	73
Two-place percentages	196
Three-place percentages	45
Four-place percentages	3

be doing the much more important thing of viewing things in quantitative relation.

The study revealed an abundant use of units of measure as instruments of thought in one's reading. Table V shows the use of various measures. In addition, there were other measures of an uncommon character which were not counted: carloads, light-years, carats, bolts of cloth, bales of cotton, rolls of wall-paper, and the like.

These many units are used to measure quantities both small and large. For example, in the study were found such ranges as are shown in Table VI.

Contrary to expectation, the graphical presentation of quantitative data was almost absent. In the twenty publications analyzed only five graphs were found. One of these showed the growth of deposits in a bank through a series of years. Two others were graphs of the circle type, showing in one case the racial make-up of the

TABLE V

	Frequency		Frequency
Cubic measure:		Square measure—*Continued:*	
Cubic inch	1	Square yard	9
Cubic foot	5	Acre	123
Dry measure:		Square mile	5
Peck	10	Time:	
Bushel	18	Second	43
Electrical measures:		Minute	77
Volt	8	Hour	202
Watt	7	Day	162
Kilowatt	4	Week	102
Ampere	2	Month	80
Ohm	2	Year	241
Foreign money:		Century	2
Shilling	2	Weight (avoirdupois):	
Pence	6	Ounce	17
Crown	4	Pound	226
Guinea	1	Cwt.	14
Franc	4	Ton	34
Rupee	1	Miscellaneous:	
Lire	1	Degree (F.)	153
Yen	1	Degree (C.)	3
Linear measure:		Degree (Circular measure)	11
Inch	371	Furlong	61
Foot	208	Dozen	71
Yard	129	Calorie	1
Rod	1	Cord	2
Mile	179	Gram	2
Liquid measure:		Meter	23
Pint	14	Kilometer	2
Quart	37	Square meter	1
Gallon	60	Cup	42
Barrel	4	Teaspoon	18
Square measure:		Tablespoon	12
Square inch	2	Drop	1
Square foot	15	Gross	1

TABLE VI

Unit	Lower Limit	Upper Limit
Gallon	1	2,000,000
Barrel	2	20,000
Bushel	0	2,260,000
Mile	$\frac{1}{8}$	235,000,000,000,000,000
Square foot	125	11,000
Square yard	0	175,000,000
Acre	$\frac{1}{2}$	190,000
Pound	2	10,000
Ton	38	1,500,000
Meter	100	30,000,000
Degrees (F.)	17 below zero	3,000 above zero
Cubic foot	3,000	280,000

Hawaiian Islands and in the other case the relative amounts of different kinds of insects consumed by the wren. The other two were crude advertising diagrams which could scarcely be classified as graphs.

The wealth and variety of the quantitative material found are suggested by such expressions as the following, of which there were hundreds:

lumber $30 per thousand
property to advance $10 per front foot
crude oil reduced 25c
Building materials have fallen 76 to 266 points.
jump in wheat of 4c a bushel
wage reduction of 20% proposed
45 to 55 cents per hour wages according to service record
will build house, $250 down, balance like rent
will discount car $400
2c a linear foot
bought goods at 25c on the dollar
5% discount for cash
advertising increase of 110%
five times the price
4% on savings
12c per capita
$30,000 paid-in capital
$4,300 in quarterly payments
Easy money was a feature of the past week.
manufacturing investments equal $62,000,000,000
capital and surplus, $5,000,000
per capita cost of war to England, $524.85
Loan sharks lend at 42%.
Liberty bond 4's at 100.28
a 12-horse-power engine
a five-year guaranty
reached the 200 mark
a circulation of 1,750,000
belt runs at speed of 5,000 feet per minute
a town of 8,000
cattle quotations, $5.50 to $7.00
section 13, township 30, range 21
750 revolutions per minute
a 45-acre farm
rugs, 6.7×4.1, 10.9×6.1, 12.4×9.11

96 stay at home while 100 vote
cedar chests, 40×18×18
a pan 10 inches in diameter
mailing rate is 8c an ounce
navy ratio is now 5-4-3
21,000 tons displacement
$1.50, prepaid
120 miles an hour
40% surtax
taxes autos from 15% to 30%
batting percentages ran from .486 to .357
horse makes $1\frac{1}{8}$ mi. in $1.54\frac{2}{5}$
a 4-4-50 Bordeaux mixture
a 62-foot telescope
90-mile-an-hour gale
.45 calibre revolver
the 180th meridian
a 6,000 foot plateau

These are just a few samples of the mathematical expressions found. They are very numerous and distributed through all sorts of materials. They reveal the fact that arithmetic as an *instrument of thought* is of continual use.

In the twenty publications analyzed there were no arithmetic problems of the textbook type. Mathematical materials were presented to the reader, however, which would enable him to consider or solve any number of problems according to his special situation. Thus, market reports which show the prices of bonds enable the reader to compute the cost of two, three, four, or any number of bonds of a great variety of prices. The interest paid on the bond enables him to compute the yield. In the case of the advertisements of commodities for sale, the reader can compute the cost of any quantity which he may desire to purchase. Where discounts are offered for cash or for a given period of sale, he can determine the advantage of availing himself of the discount. While millions of problems might be solved on the basis of the facts presented in these publications, it must be observed that actual problems of the textbook type, calling for computation, do not appear. The thing found is the *mathematics of fact-presentation*, not the mathematics of computation. This raises the question: To what extent should

the mathematical training of the individual result from an abundant use of the mathematics of fact-presentation as well as the needed amount of the mathematics of computation?

As Mr. Adams made the analysis of the publications for the sake of discovering the arithmetic involved, he kept a sharp lookout for the use of any portions of algebra, geometry, and trigonometry. Of algebra, he found only one slight mention. In a discussion of relativity, incidental reference was made to the algebraic law of adding exponents in the multiplication of quantities. As compared with the rich and endless array of arithmetic, this was very meager reference indeed. It appears that algebra is not one of the instruments of thought employed in the presentation of information to laymen.

The geometrical element entered in only to the extent of ordinary arithmetical mensuration of lengths, surfaces, and volumes. Except for this, only a single item of geometrical material appeared in the publications. This was the use of a figure for advertising purposes where a circle was circumscribed about a hexagon. This, of course, is not really a matter of the usual demonstrational geometry. It is only a simple matter of geometrical construction which any fifth-grade child can perform with his ruler and compass.

Of trigonometry or other higher mathematics, nothing whatever was found.

This practically complete absence of the so-called higher mathematics in the mathematics of fact-presentation in our daily, weekly, and monthly publications is a matter of very great significance at a time when there is a strong tendency to introduce the simpler aspects of algebra, geometry, and trigonometry into the seventh and eighth grades, particularly when these grades are organized as part of the junior high school. The almost total lack of evidence for the need of this material should give us pause in any such undertaking.

RECORDING INDIVIDUAL DIFFERENCES

CHARLES E. NEVILLE
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For some years past schools have been taking into consideration the fact that there are individual differences in pupils. Various plans have been devised to meet in a satisfactory manner the needs growing out of these differences. It is one of the strongest claims of the junior high school that it meets these needs better than the old type of organization. Many schools have adopted various plans of grading their pupils according to ability, but it must be admitted that even in these schools there still exist marked differences in pupils of the same general group.

A knowledge of the differences in specific or even general ability among the pupils of a class is essential for the teacher who plans her work intelligently. Knowing the ability of each pupil, she has a definite knowledge of the individual and class strengths and weaknesses that will be invaluable to her in planning her work. She can emphasize the work in which the class is weak and avoid undue emphasis on that in which the class is strong. She knows what to expect of each pupil and how to help each one most effectively.

At one of the schools under the supervision of the writer a study was made last year of the question of how best to make this valuable information available to all of the teachers.

Many weaknesses and strengths in school abilities are permanent. Those weaknesses which are not permanent should be discovered as soon as possible so that they may be eliminated. Of course, every good teacher has always discovered and made use of ability facts. A considerable amount of time at the first of every term has always been devoted to this work. This has not been time wasted because the resulting knowledge has been invaluable to the teacher. The goal at which we have attempted to arrive is a cumulative record which will give the facts at the beginning of the term to each teacher above the beginners' class. We devised a blank which was used throughout the school year and proved

exceedingly helpful. This blank includes the following items printed across the top:

- Arithmetic
  - Fundamentals
  - Tables
  - Reading problems
  - Carelessness
  - Slowness
- English
  - Oral
    - Correctness
    - Story sense
    - Pronunciation
    - Memorization
  - Written
    - Spelling
    - Sentences
    - Punctuation
    - Capitalization
- Reading
  - Pronunciation
  - Enunciation
  - Expression
  - Carelessness
  - Meaning
  - Word
  - Knowledge
- Hands
  - Penmanship
  - Drawing
  - Construction
- Conduct
  - Obedience
  - Honor
  - Neatness
  - Class spirit

The teachers insert the letter "S" in the columns where strength is shown and the letter "W" in the columns where weakness is shown. If a child is normal, no record is made on the sheet. One sheet is kept for each pupil in the class, and the record is cumulative, covering monthly entries for a period of four years. The blank measures $5\frac{1}{2} \times 8\frac{1}{2}$ inches and was made to fit the loose-leaf rollbooks used in Philadelphia.

Our experience has shown us that some changes ought to be made in the original form. For example, the record would probably be just as effective if it were made every other month, reducing the clerical work by one-half. This change would also make it possible to keep on a single sheet a record for eight years, thus following the child through his entire elementary-school course. Another improvement would be a space, perhaps on the back of the sheet, for a brief social history of the child concerned.

The form has proved valuable. The teachers who used it said that it saved them two or three weeks at the beginning of the term and that they were able to plan their work more intelligently and direct their efforts more effectively as a result of its use.

A teacher in the first half of the second grade reported that by studying the sheets sent to her by the first-grade teacher she

discovered at once that more than one-half of her pupils were weak in "story sense" in oral English and were slow in their arithmetic work. On the other hand, these same pupils were accurate in the small number combinations taught in the first grade and could pronounce well the words they used. Accordingly, she planned a rapid drill in number combinations to be used at the beginning of the daily arithmetic period. The speed of the drill, as well as its difficulty, was gradually increased, and the incentive of competition between groups was used. She also continued to emphasize the oral reproduction of stories, focusing attention on the story rather than on the words. Her work began in February, and by the first of May the pupils were making good speed records in arithmetic and most of them were being marked "strong" in "story sense."

Another teacher, in charge of a class in the second half of the second grade, reported that her class sheets showed great weakness in capitalization and sentence structure. There were also a few pupils who were very weak in their multiplication tables. This last group was separated from the rest of the class and drilled on the tables in which they were weak. Specially planned work in capitalization and sentence structure for the whole class brought such good results that a set of written English papers which were shown to the writer at the close of the term was above the average of second-grade papers and showed few errors in capitalization.

A third-grade teacher reported that weaknesses in fundamental operations were found to be a common difficulty in her class in the first half-year. It was a class problem, but among the pupils there were some who had difficulty with multiplication, others with subtraction, and so on. She was able to divide the pupils into groups and to drill each group on its special weakness. This selective treatment was so effective that in the second half-year the class was noticeably above the average in arithmetic and yet had not fallen below standard in its other work.

Many more illustrations are at hand, but these will suffice to show that the experiment was successful in helping the teachers to direct their best efforts where they were most needed. All of the teachers who have tried the plan are enthusiastic about it and wish it to be continued with the modifications suggested.

Educational Writings

REVIEWS AND BOOK NOTES

What democratic America expects from its schools and universities.—On July 4, 1923, at the meeting of the National Education Association, President Suzzallo, of the University of Washington, gave a popular exposition of the ideals of a democratic school system in a brilliant address which is now somewhat enlarged and published as a book.[1]

President Suzzallo conceives of the educational system of this country as an instrument for placing every individual where he can most effectively achieve his own personal development and serve others. There are to be no arbitrary lines which mark off one group from another and indicate to the favored ones that society is interested in them to the exclusion of all others. The duty of the state is to prepare all of its citizens and help them find themselves.

The address is timely because of the recent discussions in which some writers have been advocating the policy of excluding from the crowded higher schools all except those who can pass with high scores the tests of intelligence which have become common. To those who would solve the problems of educational organization by wholesale exclusion, President Suzzallo points out the importance of admitting many in order that the processes of social adjustment may be made under the favorable conditions of school life.

The address is full of striking epigrams and striking phrases which clinch the arguments and make vivid President Suzzallo's reasons for the faith in public education which he holds and intends to stimulate in others.

The book is an answer to some who are gloomily advocating retrenchment because of the high cost of schools and to all who are so impressed with the limitations of human nature that they despair of elevating the race except by some kind of drastic elimination of the majority.

CHARLES H. JUDD

Instructional technique in elementary education.—Skilful instruction, the product of careful systematic teacher-training, is the corner-stone of the structure of education. Pedagogues have recognized for many years the value of this principle when applied to the elementary school. They have more

[1] Henry Suzzallo, *Our Faith in Education.* Philadelphia: J. B. Lippincott Co., 1924. Pp. 108. $1.25.

recently accepted its application to the secondary school and have postponed its application to higher institutions of learning. The number of books discussing the technique of teaching as applied to the three levels of learning is in direct ratio to the order in which each hierarchy has instituted teacher-training as a part of its program.

A recent contribution[1] to the field of elementary methods will find a goodly number of fellow volumes on hand to welcome its appearance. It is not unlikely that the older books will question the newcomer's place in their corner of the pedagogical world.

A statement of the purpose of the author will assist in placing the book in its proper niche. The volume aims to discuss in simple unified language those principles of teaching which experience and studies in educational psychology have found to be of value. The exposition of these principles is illustrated by concrete reports of classroom procedure. Conclusions of research are presented without nebulous tables and scientific vocabulary. Hence, the neophyte teacher will find the book a readable concrete statement of sound teaching technique.

The book opens with the usual statement of the aims of education. These are classified under two headings: "general" and "specific." No attempt is made to define the terms in the abstract. Rather, they are discussed in connection with examples of lesson plans which illustrate the technique of transforming purposes into actual instruction. This discussion is brief, which perhaps accounts for the fact that the carefully worded lists of objectives which characterize the recent studies of educational aims are omitted.

The transition from philosophy to technique is quickly made. The different types of lessons, recitations, and methods are described—for example, the drill lesson, the development lesson, the socialized recitation, and the lecture method. The author does not, however, clearly distinguish between the use of the terms "lesson," "recitation," and "method." This fault is common to writers in the field of method and is confusing to the inexperienced teacher. A second chapter on technique follows, covering briefly the organization of work or lesson-planning. This brevity doubtless explains the eight-paragraph discussion of the principles which should guide the teacher in making a wise selection and arrangement of subject-matter.

The presentation of principles more closely related to educational psychology begins with chapters on motivation and securing interest. These are followed by a chapter dealing with the indirectly related topic of "Guidance or Leadership." Chapters follow covering the topics of stimulating thought, habit formation, provisions for individual differences, and supervised study. Under the title, "Ability to Secure and Hold Interest," the author discusses the apperceptive basis of the approach to new topics, making the assignment, the

[1] Ruby Minor, *Principles of Teaching Practically Applied.* Boston: Houghton Mifflin Co., 1924. Pp. xii+282. $1.90.

art of questioning, and the efficient use of physical equipment—topics which are frequently treated separately or in other connections.

Chapters xi to xiv inclusive are expositions of the types of lessons described in chapter ii. The author fails, however, to connect the two discussions by reference or by a transitional paragraph. These chapters are followed by two chapters on the project. An additional chapter covering the time-old topic of classroom management concludes the book. Four pages are devoted to discipline. The brevity and position of the latter discussion are an excellent commentary on the changing concepts of what constitutes a good technique of teaching.

This describes the organization of the book. In general, it suffers from brevity and incompleteness. The chapters treating the organization of subject-matter, reflective thinking, individual differences, and directing study might have been amplified and made more systematic. The most serious example of incompleteness appears in the omission of teaching principles which have been derived from scientific studies of how children learn the tool subjects, such as arithmetic, spelling, handwriting, and reading. The concrete illustrations are apt and clear. The lists of principles summarizing each chapter contribute to the value of the discussion. Problems for extended study and a bibliography conclude each chapter. The mechanics of the book are good.

In summary, the book serves a useful purpose as a statement, in non-technical language, of the principles of instruction, supported by a wealth of concrete illustrative material taken from practice. It should prove stimulating to immature teachers and thus find a field of service and usefulness.

F. Dean McClusky

University of Illinois

Recent data on the cost of elementary education.—Public-school officials who in recent years have been forced to defend their budgets against the vigorous attacks of tax-reduction councils have been eagerly awaiting the reports of the Educational Finance Inquiry Commission. The second volume[1] is entitled, *Elementary School Costs in the State of New York*, and was prepared for the commission by R. O. Stoops. The investigation reported in this volume was statewide in scope in the most populous state in the Union. Cities and villages of all sizes were included in the inquiry, and the data and conclusions are organized separately for communities of various sizes. The work appears in three parts.

Part I is concerned with "General Per Pupil Costs." The original data which are considered in Part I and later in Part II were taken from the annual fiscal reports of the State Department of Education of New York for the years 1910–21. At the beginning of the study the difficulty of separating elementary-school costs from the costs of other divisions of the school system was

[1] R. O. Stoops, *Elementary School Costs in the State of New York*. New York: Macmillan Co., 1924. Pp. x+124.

encountered. After considerable experimentation, the following simple and practicable formula was devised (p. 7):

$$\text{Total current expenses for schools} \times \frac{\text{Elementary teachers' salaries}}{\text{Total teachers' salaries}} = \text{Total current expenses for elementary schools}$$

The derivation of this formula and the demonstration of its validity constitute one of the main contributions of this report.

A comparison of the data for the years 1911 and 1921 showed that during the decade the per capita costs of elementary education increased more than 100 per cent in cities and villages of all sizes and that the increases were greater in the larger communities. In 1921 the total per pupil cost for all communities was $89. An average of 73 per cent of the total costs in all villages and cities was expended for teachers' salaries. In no group of communities has the increase in teachers' salaries kept pace with the increase in other school costs. Wide variation was found in the percentage of the total teachers' salaries paid to elementary-school teachers. A coefficient of correlation of +.71 was found between the per pupil costs of elementary education and the per capita wealth of all cities, which seemed to show commendable agreement between ability and performance in meeting the costs of education.

Part II presents a brief discussion of the cost of kindergarten education for the year 1920–21. The great variation in costs indicates the absence of accepted standards concerning the size of the classes and the length of the kindergarten day.

The per pupil cost of teaching the several elementary-school subjects is treated in Part III. The list includes English, arithmetic, the social sciences, health instruction, general exercises, and the fine and practical arts; the salaries of regular grade teachers, teachers of special subjects, and supervisors of special subjects are taken into account. In addition to organization according to size of community, the data are presented by grades, and the costs of the first six grades are separated from those of the seventh and eighth grades. Special attention is given to the costs of instruction in health and in the fine and practical arts, subjects which in recent years have been under the heaviest fire from tax-reduction organizations in all parts of the country. The method which was used in computing the costs is described and fully illustrated in chapter ix and constitutes one of the major contributions of the report. The data were obtained from questionnaires which were sent to all school systems in the state by the State Department of Education.

In Part III, as well as in Parts I and II, there are a large number of excellent tables and diagrams showing averages, medians, high and low extremes, and ranges of the middle 50 per cent. In numerous instances the facts are presented by single communities. A concise but clear description of the aims of the study appears in chapter i, and in chapter ii the outstanding results are briefly summarized. In short, the report has been carefully organized and is easy to use.

The publication will prove of inestimable value to educational workers who are interested in accurate cost accounting for the elementary school. The

methods of accounting and the data on central tendencies will be especially useful to superintendents who wish to know in detail where their funds go and the exact cost of introducing various instructional elements. While the facts regarding costs are of great value to school officials in the state of New York, for purposes of comparison they will prove useful to educational authorities in other states as well. By no means the least value of the report lies in the fact that it places splendid ammunition in the hands of all public-spirited citizens who are fighting for equal educational opportunities for the children of the nation. The tremendous variation in community per pupil expenditures proves conclusively that the children of many cities and villages even in the great Empire State are being grievously neglected so far as the rudiments of a common-school education are concerned.

PAUL W. TERRY

UNIVERSITY OF WASHINGTON

A survey of modern education.—A book which is thoroughly representative of the trend of the times in the way of informing the public of the modern aims and accomplishments of education comes from the Atlantic Monthly Press.[1] The title immediately attracts attention which the subject-matter sustains. The quality of the book is sufficiently attested by the words of Charles W. Eliot, who was happily selected to write the Introduction. The language throughout is in good style and non-technical, as befits the author's purpose to meet the needs of the average reader. The book is illustrated with well-chosen photographs of actual schoolroom situations.

The author begins with an abstract statement of aims, which, while containing nothing essentially new for the informed educator, cannot but be highly instructive to the serious lay reader. The next chapter contains much excellent propaganda dealing with the importance of schools. Every superintendent should make use of it. Herein is pointed out "the scant appreciation of education" shown by parents in lack of co-operation and willingness to support. The 17 to 1 ratio of the national luxury bill as compared with the expense of education leads the author to comment on the seen and unseen values of education. There is no doubt or hesitancy in his plea: "Let us throw off our lethargy and demand a practical, constructive improvement in educational opportunity that will rapidly bring about a condition where all the children of all the people will be able to have the best education that experts can plan" (p. 12).

The changing needs of the day and the consequent new demands on education are well presented. "The school, therefore, must become the smaller community, the practice-community if you will, where justice and consideration, self-reliance, and true responsibility—even democracy itself—are built into the characters of the children. So a school cannot be merely a place where subjects are taught" (p. 16).

[1] Eugene Randolph Smith, *Education Moves Ahead.* Boston: Atlantic Monthly Press, 1924. Pp. xiv+146.

Nor are the practical phases of school activity neglected. An excellent summary is given of the health responsibility of the school and the steps taken to meet it. Some of the modern methods used in each of the major subjects are vividly presented. "There has begun to be a science of teaching, and men and women are devoting their lives to its study" (p. 33). A good brief review of the scientific evidence from the educational monographs dealing with reading and an outline of such arithmetical devices as subtraction by adding, division by the short method, and multiplication from left to right add value as well as interest.

A very timely discussion of interest successfully attempts to correct the general misunderstanding of this topic. The purpose of arousing interest or of using interest "is not to make the work easy, but to secure the driving force that accomplishes even the most difficult undertakings" (p. 52). In the older form of teaching "the pupil was always outside of the situation, looking at it with more or less alien eyes. He was seldom an actual participant in activities other than as a subject for drill, nor did he live the experiences he studied" (p. 54). Stimulating suggestions of methods designed to enlist interest are given which illustrate the principle well.

The need for diagnosis and the methods of using intelligence tests and subject-matter tests are adequately treated, and some attention is given to the need for social and moral analyses. The author rebels against overemphasis on marking because of its effect on the recitation and the classroom attitude, resulting in nervous strain, as well as because of its unfairness, and recommends a more complete differentiation of ability to do and a consideration of the degree of concentration of effort.

Special stress is laid on the development of appreciations and means of expression. Remarkably good examples of the poetic expression of school children are shown, and psychological interpretations of real aims in art, music, and drama are well presented.

On the topic of character formation the author does not indulge in vague sentimentalities. He especially emphasizes the value of securing the child's co-operation and gives excellent advice to parents. For example, "perhaps the greatest advance that could be made in moral training would be a change of adult viewpoint that would abolish such words as 'naughty,' 'bad,' and 'immoral.' . . . . When children are 'bad,' it is most frequently a fault of training, which is either of the wrong kind, or inadequate" (p. 116).

The last four chapters are a general summary of the possibilities of development in the public-school system and of the trends which indicate advancement. Interfering agencies are noted. Wholesome advice is given with regard to dangers which must be avoided. The book is sane and safe from a scientific point of view, is neither long nor tedious, and can be effectively used as a basis of discussions at parent-teacher meetings, as a text in reading-circle courses, and as a supplementary normal-school or college text in introductory courses in education. It will be found unusually stimulating to both teacher and parent.

University of Chattanooga

Paul V. West

A symposium on child study.—The Childrens Foundation, an organization chartered by the state of Indiana in December, 1921, has recently made its first contribution[1] to education. This contribution consists of a compilation of articles dealing with the nature and needs of childhood, grouped into three general divisions: first, "The Present Status of Our Knowledge of Child Nature"; second, "The Present Status of Our Knowledge of Child Well-Being"; third, "The Present Status of Our Knowledge of Education." The volume is edited by Professor M. V. O'Shea, and chapters are contributed by Bird T. Baldwin, Mary T. Whitley, Walter F. Dearborn, H. H. Goddard, Leta S. Hollingworth, and other well-known educators. Parts I and II will be of special value to students of child psychology. While the chapters are, in a sense, disconnected, the unity of the whole plan is clearly apparent, and the book, as a whole, is very much worth while. It will serve well as a supplementary text in college or normal-school classes. It should also have a wide use as a reading-circle text and as a study book for parent-teacher groups. The Childrens Foundation is to be congratulated on its first publication.

G. T. BUSWELL

A survey of junior high schools in New York City.—Several considerations in addition to the content itself tend to give distinction to the *Survey of the Junior High Schools of the City of New York*,[2] among them the fact that it canvasses what has been accomplished toward reorganization in our largest city, the impressive number of junior high schools represented in the study (forty-three), and the fact that this is a survey "from within" the system.

The materials of the report are effectively presented. The first chapter is wisely given over to a summary of the chief conclusions of the fifteen chapters that follow. In order, these chapters concern themselves with the growth of the junior high schools in the city, the classification of the pupils, the course of study, differentiation of courses and guidance, the teaching load, the success of pupils in the ninth grade of the junior high school and in the first year of the four-year high school, the subsequent success of the two groups of pupils in tenth-grade work in the senior high school, the use of prognostic tests in the junior high school, teacher participation, pupil self-government, after-school activities, the training of junior high school teachers, the effects of junior high school reorganization on the part-time and double-session problems, the extent of withdrawal of teachers from junior high schools, and methods of teaching. These aspects of the junior high school problem have not been canvassed with uniform thoroughness, but this is due in part to the obviously intangible character of several of the aspects named. Moreover, no small proportion of those experienced with the movement will be disposed to take exception to some of the conditions disclosed with which the investigators appear to be satisfied.

[1] *The Child: His Nature and His Needs.* Edited by M. V. O'Shea. Valparaiso, Indiana: Childrens Foundation, 1924. Pp. x+516. $1.00.

[2] *Survey of the Junior High Schools of the City of New York.* New York: Board of Education, 1923. Pp. 258.

Instances of these are the fact that almost all of the junior high schools are housed in close association with elementary schools and the fact that the grouping of pupils by ability results in progress at an *average* rate much more rapid than one grade a year. The report is, however, deserving of commendation for its spirit, its method, and its content, and those who have responsibilities for junior high schools in large urban centers, whether within or without New York City, will do well to give it careful perusal.

LEONARD V. KOOS

UNIVERSITY OF MINNESOTA

Determining the cost of training teachers.—One set of factors which influences the policy of a state with regard to teacher-training has to do with the finances involved. Some of the questions which must be answered are these: What are the present conditions within the state as to the amount and kind of training given? What does it cost? What are the standards of teacher-training? How many teachers are needed to meet and maintain a proper standard? How much will it cost to maintain this standard? What economies in the present system are possible?

An attempt to answer these questions for the state of New York has been made in connection with the studies of the Educational Finance Inquiry Commission, and the results have been published in a small monograph[1] by Homer E. Cooper. The standard of teacher-training which he sets up is normal-school graduation for teaching in elementary schools and college graduation, including two years of professional training, for teaching in high schools. New York City is the single area found which meets this standard perfectly. "Fifty-seven per cent of the teachers in the elementary schools [outside of New York City] are below normal-school graduation as judged by the certificates they hold" (p. 14). High-school teachers who are below college graduation in point of preparation make up about 30 per cent of the high-school teachers outside of New York City.

In discussing the requirements for meeting the standards, the author brings out the fact that the average amount of service on all certificates is 6.75 years. This varies from a half-year for the temporary license to 29.5 years for the state certificate. "It would require an increase of 96.33 per cent over the present annual output of the normal schools to do the work that is now being done by persons holding certificates that do not require as much preparation as normal-school graduation" (p. 44). "It would cost $1,054,183 annually to keep the places filled by trained teachers that are now filled by those holding low-grade certificates" (p. 52). An additional capital outlay of $2,686,427 would be required to increase the capacity of training institutions so that they could produce the required teachers.

[1] Homer E. Cooper, *Cost of Training Teachers.* Baltimore: Warwick & York, Inc., 1924. Pp. 112. $1.60.

The author finds that economies could be brought about (1) by abandoning one institution where the cost per graduate is excessive, (2) by consolidating elementary schools, thus reducing slightly the number of teachers required, (3) by making normal-school classes slightly larger, and (4) by inducing the teachers to render more years of service.

The study will be of general interest, not so much on account of the conclusions arrived at for New York State as on account of the method used in reaching the conclusions. The method would be clearer for the reader if described in a more connected fashion with a less liberal use of footnotes.

A. C. BOYCE

A history of lesson-planning.—According to a recent study[1] of the practice of lesson-planning in the United States, the history of this small but important part of teacher-training and supervision in this country centers around the importation and development of Herbartian ideas. Previous to the Herbartian movement, there was at first little thought of lesson preparation other than gaining knowledge of subject-matter. Between 1860 and 1890, Pestalozzian object teaching was the influential factor in giving "form" to lessons. In the latter part of this period there was "some dissatisfaction with object teaching because of its inadequacy in explaining the learning process and because of its tendency toward formalism" (p. 11). Studies of normal-school practice in 1887 and 1890 show that schools were requiring formal sketches of lessons, but there seems to have been no agreement as to the form of such lesson plans.

The Herbartian ideas of mental development were given great publicity by the group of men who studied in Germany about 1890. This resulted in a very wide acceptance of the so-called five formal steps as the ideal outline for lesson-planning. "There was much criticism but a general acceptance of much that the Herbartians taught" (p. 37).

Since 1900 there has been, first, "a marked development of the formal steps, with emphasis on the use of questions in unfolding the subject-matter" and, second, a "tendency to abandon the formal steps, adhering to parts, notably the aim, accompanied by a developmental procedure consisting largely of questions" (p. 37).

Such, very briefly, is the history of lesson-planning up to the present. The author makes two contributions to the discussion. The first of these is a questionnaire investigation of the present attitudes and practices relative to lesson-planning. These attitudes and practices were determined on the basis of replies received from three sources: (*a*) normal schools and state teachers' colleges, (*b*) classroom teachers, and (*c*) those responsible for the work of teachers, such as administrative officers and critic teachers. The findings may

[1] Lois Coffey Mossman, *Changing Conceptions Relative to the Planning of Lessons*. Teachers College Contributions to Education, No. 147. New York: Teachers College, Columbia University, 1924. Pp. vi+72.

be briefly summarized as follows: (1) Planning is approved, but there is wide diversity of opinion as to form. There is a very small number who favor the five formal steps. (2) There is a tendency to move the center of gravity of the plan from the teachers' activity to that of the child and to the part which the class contributes to the lesson. (3) There is a growing realization that one type of lesson plan will not fit widely different lesson types.

The second contribution which the author makes is in the nature of suggestions relative to the preparation of daily work. She reviews the chief points of its history and shows the difficulties which confront teachers and supervisors. Her discussion of the present theories regarding instruction would be more helpful to the average reader if she had given the sources of the theories instead of saying in a footnote that "the informed will recognize the sources of much that is presented." She leaves the reader to find them for himself if he cares to examine them in more detail. The book is closed with a summary of the bearing of the present theories on the preparation of lesson plans.

The book will be of interest to those who are engaged in training and guiding teachers. It gives a very complete view of that part of the teacher's work which relates to lesson plans. The chapters are well summarized, and there is an extended bibliography which is very complete as to the history of lesson-planning and fairly complete as to modern educational theory and principles of teaching.

A. C. BOYCE

A volume of reference on school finance.—One of the most commonly felt needs among school leaders has been for a source of reliable and recent data on the subject of school finance. The sixth volume[1] of the report of the Educational Finance Inquiry Commission provides just such a source of reference. The material for this volume was gathered by Mabel Newcomer, professor of economics in Vassar College.

In order to facilitate comparisons between states, the data are so arranged that the facts for each state can be easily located. The study covers the following major topics:

(1) The cost of education compared with the total cost of government; (2) the cost of education distributed among schools of different levels; (3) educational expenditures analyzed into capital outlay, interest, and current expenses; (4) sources of school revenue; and (5) the school debt. On each item the facts are given for the country as a whole and for each state individually. In addition, various devices have been employed to insure easy and accurate comparisons between the states. The significant facts about any one state are drawn together in a special table for that state. The tables regularly include data for 1910, 1915, and 1920, and where possible for the years between [p. iii].

The report furnishes a most excellent handbook of reference. In some cases the tables are supported by graphic presentation of the facts, which adds

[1] Mabel Newcomer, *Financial Statistics of Public Education in the United States, 1910-1920*. New York: Macmillan Co., 1924. Pp. viii+188.

considerably to the ease of reading. Such a report as this will help very much in answering the frequently raised question, Can the people of the United States afford to continue their present program in public education? While the report shows that the gross cost of education has mounted rapidly since 1910, it shows further that when this cost is compared with the increase in the public income or with the increase in the cost of other government expenditures, the increase in cost for carrying on the schools has not been out of proportion to other increases. For example, as shown by the table on page 29, in 1920 public education received 1.7 per cent of the income of the United States as compared with 1.6 per cent in 1910, and 2 per cent in 1915. Also, as shown in the table on page 13, 1 per cent of the total national governmental expenditures in 1920 were for education as compared with 1.3 per cent in 1910. In 1920, 30.1 per cent of the total state governmental expenditures were for education as compared with 37.6 per cent in 1910. In 1920, 29.6 per cent of the local governmental expenditures were for education as compared with 26.6 per cent in 1910.

In the discussion of the sources of revenue for education the following paragraphs appear:

> The support of public education comes primarily from local sources. Federal support of education has increased rapidly in recent years, the percentage of total revenues for education coming from federal taxes being 5.3 per cent in 1920 as against 2.5 per cent in 1910. However, the percentage of total federal taxes going to education decreased from 1.9 per cent in 1910 to 1.1 per cent in 1920. State governments, in spite of increasing appropriations for higher education and increasing aid to local districts, are supplying a decreasing proportion of the total educational support. Local divisions supply more than 70 per cent of the total revenues for all schools [p. 5].
>
> Of the local school revenues, 76 per cent came from the general property tax in 1920 as against 71.3 per cent in 1910. Local school taxes per capita ranged by states in 1920 from $1.72 to $17.64 with a median of $7.66 as against a range of $0.33 to $6.89 with a median of $3.61 in 1910 [p. 6].

The report is full of the type of information which, if widely disseminated, would do much to clarify public thinking on the subject of school finance.

Expression and drill in sensible proportions.—Those who are familiar with the series of junior high school English books by Briggs, McKinney, and Skeffington will recognize at once the merits of their theory and system of instruction. They place pupils in natural situations, demanding expression in order to cultivate sincerity and clearness of writing and speaking. They make such experiences interesting both to the pupils who speak and to their classmates who listen. They separate expression from drill. In a new book,[1] a ninth-grade text, two of these authors, Thomas H. Briggs and Isabel McKinney, include one hundred pages of admirable drill material so arranged and classified in appendixes that it can be used with individual pupils or with classes having

[1] Thomas H. Briggs and Isabel McKinney, *Ways to Better English.* Boston: Ginn & Co., 1924. Pp. viii+332.

special language needs. Moreover, the authors very wisely treat accuracy and correctness in language as the socially important feature of expression. They motivate correctness by making the pupils eager to express themselves effectively.

The book is brief; it dwells only on minimal language essentials; it combines drill and expression in the right relations and proportions; it is attractively and ingeniously illustrated; it is an admirably made and printed volume, worthy of careful consideration for ninth-grade adoption.

R. L. LYMAN

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